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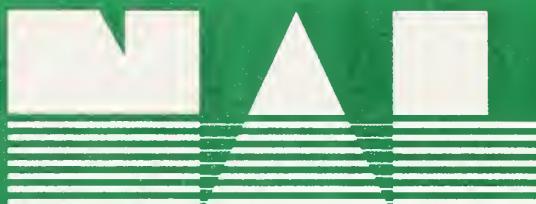


Maryland Water Resources Progress Report 1988

Including
Resource Conservation and Development,
and Rural Abandoned Mine Program



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FOREWORD

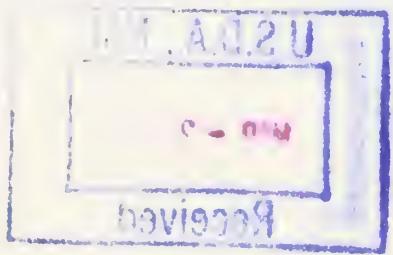
This report includes the activities, achievements, and future plans for the Water Resources Program in Maryland including the Resource Conservation and Development Program (RC&D) and the Rural Abandoned Mine Program (RAMP).



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MARYLAND
WATER RESOURCES PROGRESS REPORT
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PART I

SMALL WATERSHED PROGRAM

SMALL WATERSHED PROGRAM

The Flood Control Act of 1944, as amended, gives to the U.S. Department of Agriculture (USDA) responsibility in 11 selected watersheds for watershed investigations and for planning and installing measures to reduce runoff and erosion and slow down stream flow. The Soil Conservation Service (SCS) and the Forest Service (FS) carry out this responsibility with assistance from other agencies within and outside USDA.

Congress enacted the Watershed Protection and Flood Prevention Act (PL 83-566) in 1954. The Soil Conservation Service administers this program in cooperation with the U.S. Forest Service, the State Soil Conservation Committee, Maryland Department of Agriculture, Soil Conservation District Supervisors, and local governments. The program provides technical and financial assistance to local watershed groups willing to assume responsibility for initiating, carrying out, and sharing the costs of upstream watershed conservation, flood control, and water management.

Little Deer Creek, Harford County, had the first application approved by the State Soil Conservation Committee in November 1954. It was also the first approved for planning and operations and was completed in June 1970. The project included 3 flood control dams with land treatment costing only \$348,300. To date, 43 project applications have been approved by the Soil Conservation State Committee. Construction is completed for 15 projects, 7 are operational, 1 is being planned, 4 approved applications are pending, 10 have been terminated or suspended, 5 were not feasible under the Public Law 83-566 program, and planning was stopped on 1 because of environmental reasons.

The small watershed program has been responsible for constructing 16 dams and completing 616 miles of multiple-purpose channel work. Approximately 300,000 acres have been treated or protected by the structural and conservation works of improvement provided by these projects.

The watershed activity in the state is presently in transition from a structural flood prevention/drainage program to a non-structural watershed protection technical assistance type program. Because of high landrights and small undeveloped floodplains, Maryland has been forced out of the traditional flood control program. The last dam was completed during November 1975 in the St. Mary's River Watershed. The flood prevention/drainage projects are temporarily stalled because of environmental issues relating to water quality problems associated with the Chesapeake Bay.

WATERSHEDS COMPLETED - 15

The installation of all structural and land treatment measures included as part of the original or revised work plans of the following watersheds has been completed.

Little Deer Creek
Little Youghiogheny
Timmonstown Branch
 Gilbert Run
Upper Rock Creek
 Long Marsh
 Aydelotte
Ninepin Branch
Franklin Branch
Coonfoot Branch
 Passerdyke
 Piney Run
Shingle Landing
Dividing Creek
Upper Manokin

COMPLETED

LITTLE DEER CREEK WATERSHED

Application number - 1

Location - Harford County

Subwatershed of - The Susquehanna River Basin

Drainage area - 10,112 acres

Sponsored by - Harford Soil Conservation District

Application approved by State Committee - November 1954

Planning authorized - February 9, 1955

Plan approved - September 13, 1956

Project completed - June 30, 1970

Project purposes - Flood Prevention
Watershed Protection

Project measures - 3 flood control dams
Land treatment

Project Cost -

PL-566 - \$282,443

Other - \$ 65,886

Total - \$348,329

COMPLETED

LITTLE YOUGHOHENY RIVER WATERSHED

Application number - 2

Location - Garrett County

Subwatershed of - The Ohio River Basin

Drainage area - 26,275 acres

Sponsored by - Garrett Soil Conservation District
City of Oakland, Maryland
County Commissioners of Garrett County
Wilson Run Public Watershed Association

Application approved by State Committee - February, 1955

Planning authorized - April 15, 1955

Plan approved - March 14, 1957

Project completed - December 31, 1976

Project purposes - Flood Prevention
Recreation
Municipal Water Supply
Watershed Protection

Project measures - 5 single purpose flood water retarding structures
1 multiple purpose impoundment
Land treatment

Project Cost -

PL-566	- \$1,770,544
Other	- \$ 852,496
Total	- \$2,623,040

COMPLETED

TIMMONSTOWN BRANCH WATERSHED

Application number - 3

Location - Worcester County

Tributary to - Pocomoke River

Drainage area - 8,655 acres

Sponsored by - Worcester Soil Conservation District
Board of County Commissioners of Worcester County

Application approved by State Committee - March 1955

Planning authorized - August 25, 1955

Plan approved - May 21, 1957

Project completed - June 30, 1963

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Project measures - 28.3 miles of channel work
Land treatment

Project Cost -
PL-566 - \$203,745
Other - \$150,263
Total - \$354,008

COMPLETED

GILBERT RUN WATERSHED

Application number - 4

Location - Charles and St. Marys County

Tributary to - Potomac River

Drainage area - 28,622 acres

Sponsored by - Charles and St. Marys Soil Conservation Districts
Charles County Commissioners
Gilbert Run Public Watershed Association
Charles County Board of Parks and Recreation

Application approved by State Committee - October 1955

Planning authorized - January 6, 1956

Operations authorized - August 7, 1959

Project completed - December 31, 1976

Project purposes - Flood Prevention
Recreation
Watershed Protection

Project measures - 2 Flood water retarding structures
1 multiple purpose structure
11.2 miles of channel work
Land treatment

Project Cost -

PL-566	- \$2,946,597
Other	- \$ 702,662
Total	- \$3,649,259

COMPLETED

UPPER ROCK CREEK WATERSHED

Application number - 5

Location - Montgomery County

Tributary to - Potomac River

Drainage area - 38,765 acres

Sponsored by - Montgomery Soil Conservation District
Montgomery County
Maryland-National Capital Park and Planning Commission

Application approved by State Committee - December 1956

Planning authorized - January 8, 1957

Operations authorized - June 20, 1963

Project completed - June 30, 1973

Project purposes - Flood Prevention
Recreation
Fish and Wildlife
Watershed Protection

Project measures - 2 Multiple purpose dams
Land treatment

Project Cost -

PL-566 - \$1,414,322

Other - \$2,822,880

Total - \$4,237,202

COMPLETED

LONG MARSH WATERSHED

Application number - 8

Location - Queen Annes and Caroline Counties

Tributary to - Choptank River

Drainage area - 27,363 acres

Sponsored by - Queen Annes County Commissioners
Queen Annes Soil Conservation District
Caroline County Commissioners
Caroline Soil Conservation District

Application approved by State Committee - July 1957

Planning authorized - April 15, 1958

Operations authorized - August 31, 1960

Project completed - June 30, 1975

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Project measures - 115.1 miles of channel work
Land treatment

Project Cost -

PL-566	- \$1,021,901
Other	- \$ 407,992
Total	- \$1,429,893

COMPLETED

AYDELOTTE WATERSHED

Application number - 10

Location - Wicomico County

Tributary to - Pocomoke River

Drainage area - 12,470 acres

Sponsored by - Wicomico Soil Conservation District
Wicomico County Commissioners
Aydelotte Drainage Association

Application approved by State Committee - September 1959

Planning authorized - August 15, 1961

Operations authorized - August 30, 1962

Project completed - July 1, 1971

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Project measures - 64.8 miles of channel work
Land treatment

Project Cost -
PL-566 - \$520,132
Other - \$260,000
Total - \$780,132

COMPLETED

NINEPIN BRANCH WATERSHED

Application number - 11

Location - Worcester County

Tributary to - Pocomoke River

Drainage area - 6,300 acres

Sponsored by - Worcester Soil Conservation District
Worcester County Commissioners

Application approved by State Committee - July 26, 1961

Planning authorized - June 18, 1962

Operations authorized - April 1, 1963

Project completed - June 30, 1968

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Project measures - 21 miles of channel work
Land treatment

Project Cost -

PL-566 - \$167,384

Other - \$ 94,843

Total - \$262,227

COMPLETED

FRANKLIN BRANCH WATERSHED

Application number - 12

Location - Worcester County

Tributary to - Pocomoke River

Drainage area - 3,162 acres

Sponsored by - Worcester Soil Conservation District
Worcester County Commissioners

Application approved by State Committee - July 25, 1961

Planning authorized - May 20, 1963

Operations authorized - June 2, 1964

Project completed - May 31, 1969

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Project measures - 12.1 miles of channel work
Land treatment

Project Cost -

PL-566	- \$ 82,461
Other	- \$ 55,204
Total	- \$137,665

COMPLETED

COONFOOT BRANCH WATERSHED

Application number - 13

Location - Worcester County

Tributary to - Pocomoke River

Drainage area - 3,752 acres

Sponsored by - Worcester Soil Conservation District
Worcester County Commissioners

Application approved by State Committee - July 26, 1961

Planning authorized - May 20, 1963

Operations authorized - June 30, 1964

Project completed - May 31, 1969

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Project measures - 13.1 miles of channel work
Land treatment

Project Cost -

PL-566 - \$ 89,795

Other - \$ 58,708

Total - \$148,503

COMPLETED

PASSERDYKE WATERSHED

Application number - 24

Location - Somerset, Worcester and Wicomico Counties

Subwatershed of - Chesapeake Bay

Drainage area - 7,840 acres

Sponsored by - Wicomico, Somerset, and Worcester Soil Conservation Districts
Wicomico, Somerset, and Worcester County Commissioners

Application approved by State Committee - November 15, 1963

Planning authorized - July 26, 1965

Operations authorized - May 24, 1966

Completion Date - June 30, 1976

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Project measures - 32.2 miles of channel work
Land treatment

Project Cost -

PL-566	- \$526,966
Other	- \$189,000
Total	- \$715,966

COMPLETED

PINEY RUN WATERSHED

Application number - 32

Location - Carroll County

Tributary to - South Branch of the Patapsco River

Drainage area - 11,700 acres

Sponsored by - Carroll Soil Conservation District
Carroll County Commissioners
Carroll County Park and Recreation Board
Carroll County Sanitary Commission
Maryland Department of Natural Resources

Application approved by State Committee - February 21, 1966

Planning authorized - April 10, 1967

Operations authorized - August 27, 1969

Project completed - September 30, 1981

Project purposes - Flood Prevention
Watershed Protection
Water Supply
Recreation

Project measures - One multiple purpose flood prevention, water supply and recreational structure with basic recreation facilities
Land treatment

Project Cost -

PL-566 - \$ 826,500

Other - \$2,553,800

Total - \$3,380,300

COMPLETED

SHINGLE LANDING WATERSHED

Application number - 14

Location - Worcester County

Tributary to - St. Martin River

Drainage area - 11,670 acres

Sponsored by - Worcester Soil Conservation District
Worcester County Commissioners

Application approved by State Committee - July 26, 1961

Planning authorized - October 23, 1967

Operations authorized - November 26, 1968

Project completed - September 30, 1981

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Project measures - 29.7 miles of channel work
Land treatment

Project Cost -

PL-566 - \$537,200

Other - \$296,300

Total - \$833,500

COMPLETED

DIVIDING CREEK WATERSHED

Application number - 15

Location - Wicomico, Worcester, and Somerset Counties

Tributary to - Pocomoke River

Drainage area - 41,900 acres

Sponsored by - Worcester Soil Conservation District
Worcester County Commissioners
Wicomico Soil Conservation District
Wicomico County Council
Somerset Soil Conservation District
Somerset County Commissioners

Application approved by State Committee - July 26, 1961

Planning authorized - July 15, 1968

Operations authorized - July 19, 1974

Project completed - September 30, 1983

Project measures - 65.8 miles of channel work
Land treatment

Project Cost -

PL-566	-	\$1,298,984
Other	-	\$ 742,300
Total	-	\$2,041,284

COMPLETED

UPPER MANOKIN WATERSHED

Application number - 22

Location - Somerset County

Subwatershed to - Chesapeake Bay

Drainage area - 7,883 acres

Sponsored by - Somerset Soil Conservation District
Somerset County Commissioners

Application approved by State Committee - July 2, 1962

Planning authorized - February 15, 1965

Plan approved - October 1965

Project completed - September 30, 1985

Project purposes - Flood Prevention
Watershed Protection
Agricultural Water Management (Drainage)

Project measures - 23.9 miles of multiple-purpose channels
Land treatment

Project Cost -

PL-566 - \$341,900

Other - \$252,200

Total - \$594,100

WATERSHEDS APPROVED FOR OPERATIONS - 7

The following watersheds have been approved for operations (installation).

Marshyhope
Upper Choptank River
Goldsboro
St. Mary's River
Seneca Creek
Upper Chester River
West and Rhode Rivers

OPERATIONAL

MARSHYHOPE CREEK WATERSHED

Caroline and Dorchester Counties, Maryland
Kent and Sussex Counties, Delaware

Application Number 9

Project in Brief: Authorized August 19, 1964. Area - 100,600 acres (Maryland 40,240 acres, Delaware 60,360 acres). Aside from minor land holdings by the State of Maryland, land ownership is private. Sponsors - Delaware Department of Natural Resources and Environmental Control; Caroline and Dorchester Soil Conservation Districts; County Commissioners of Caroline and Dorchester Counties; and the Town of Federalsburg, Maryland. Estimated total project costs - (Maryland Only) \$6,860,582 (\$4,578,154 PL-566 and \$2,282,428 other). Principal problems - damage to agricultural land, towns, and roads by floodwater and poor drainage. Land use (total for Delaware and Maryland) - cropland 39 percent, grassland 7 percent, woodland 52 percent, other 2 percent.

Progress in Land Treatment: In Maryland's portion of the watershed, there are 313 operating units, of which 268 are district cooperators. Conservation plans have been prepared on 33,396 acres. Of the 19,121 acres needing conservation cropping sequence, 13,149 acres have been treated. Eighty-two percent of the needed open drainage has been installed as well as 72% of the needed tile drains. Four hundred nine acres of trees have been planted.

Progress in Structural Measures: In Maryland the flood control channel through the Town of Federalsburg, and 119 miles of multiple-purpose channel have been completed at a construction cost of \$1,865,885. Miles Branch PDA construction (1.0 miles) was completed during FY 87 at a cost of \$18,327.

OPERATIONAL

UPPER CHOPTANK RIVER WATERSHED
Caroline and Queen Anne's Counties, Maryland
Kent County, Delaware

Application Number 16

Project in Brief: Authorized September 10, 1965. Area - 57,000 acres (46,740 acres in Delaware, 10,260 acres in Maryland). Nearly all land is in private ownership. Sponsors - Delaware Department of Natural Resources and Environmental Control; Caroline and Queen Anne's Soil Conservation Districts; and Caroline and Queen Anne's County Commissioners, Maryland. The total estimated project cost (Maryland Only) - \$1,907,449 (\$1,183,337 PL-566 and \$724,072 other). Principal problems - inadequate drainage and periodic flooding to agricultural land, towns, and roads. Land use - cropland 46 percent, grassland 8 percent, woodland 46 percent.

Progress in Land Treatment: In the Maryland portion of the watershed there are 135 operating units. Of these 54 are district cooperators. Conservation plans have been prepared on 4,744 acres. Of the 4,819 acres of cropland needing conservation cropping sequence, 2,695 acres have been treated. Ninety three percent of the needed open drainage has been installed as well as 64 percent of the needed tile drains.

Progress in Structural Measures: In Maryland 51.9 miles of channel have been installed at a construction cost of \$600,300. West Henderson PDA (5.7 miles) was completed in July 1985. This completed the structural portion of the project in Maryland. During FY-85 repairs were made to 175 control inlets in the Harrington Beaverdam PDA.

OPERATIONAL

GOLDSBORO WATERSHED
Caroline County, Maryland

Application Number 25

Project in Brief: Authorized - August 25, 1967. Area - 9,250 acres (all privately owned). Sponsors - Caroline County Commissioners, Caroline Soil Conservation District, Broadway Public Drainage Association. Estimated total cost - \$1,613,469 (\$1,008,609 PL-566 and \$604,860 other). Principal problems - impaired agricultural production, residential flooding, erosion and sedimentation. Most farms are owner-operated with 5,309 acres of cropland, 3,308 acres of woodland, and 597 acres in other uses.

Progress in Land Treatment: Of the 67 farmers in the watershed, 50 are district cooperators. Basic conservation plans are developed for 9,768 acres. Of the 5,596 acres needing conservation cropping sequence, 5,518 acres have been treated. Seventy-four percent of the needed open drainage has been installed as well as 67% of the needed tile drains.

Progress in Structural Measures: Approximately 60 percent of the design surveys are complete. The Broadway Public Drainage Association has been completed. Twenty-six and eight tenths miles of multiple-purpose channel work, or about 50 percent of the total, has been installed at a cost of \$247,420. Several meetings with the sponsors were held during FY-1988, including a public information meeting, to resolve conflicts surrounding proposed impacts the project would have on the Chesapeake Bay. It was concluded that no further action would be taken under the PL-566 program at this time. The sponsors will continue to carry out works of improvement under the existing PDA through an O&M Plan using state and local funds. SCS will provide technical assistance as requested under CO-01.

Case Histories of Watershed Project Benefits: Several farmers in the Broadway system have reported that they are now able to plant and harvest their crops on time without the losses that they experienced before the system was installed. With Broadway construction complete, farmers in the watershed are starting to improve on-farm drainage by installing open drains and tile systems. There is an increase in no-till soybeans in the area of the completed works of improvement. During the spring of 1979 a fertilizer dealer stated that he could send his lime trucks to the Broadway area when it was too wet to spread lime in other parts of the county.

OPERATIONAL

ST. MARY'S RIVER WATERSHED
St. Mary's County, Maryland

Application Number 27

Project in Brief: Authorized - September 29, 1970. Area - 20,000 acres all privately owned, much of it wooded. There are approximately 2,300 acres of developed land in the upper reaches of the watershed with the town of Great Mills being the principal recipient of flood control benefits. Land use - 11 percent cropland, 5 percent pasture, 71 percent woodland, and 13 percent other. Sponsors - The St. Mary's Soil Conservaton District, St. Mary's Board of County Commissioners, and the Maryland Department of Natural Resources. Two multiple-purpose and three single-purpose structures are planned. A supplemental environmental impact statement was prepared for the proposed multiple-purpose structure at Site 2 because of litigation. The statement included an economic reevaluation, which shows that the structure statement is no longer justified. Using the current interest rate, the benefit-cost ratio is 0.5 to 1. The three single-purpose structures are also no longer feasible. Based on this information, financial and technical assistance will be terminated and the project closed out in FY-89.

Progress in Land Treatment: Of the 85 operating units (10,458 acres), 67 units totaling 8,365 acres are under cooperative agreement with the St. Mary's Soil Conservation District. Conservation plans covering 7,525 acres have been written on 52 farms. Forty-three percent of the planned land treatment has been completed on the cropland and more than 79 percent of grassland and woodland. Major practices installed to date include 6,280 feet of field ditches, 4,850 feet of diversions, 182 acres of stripcropping, 34 farm ponds, 320 acres of pasture management, 688 acres of crop residue management, and 1,935 acres of conservation cropping sequence. Eighty-two percent of the watershed is adequately protected.

Forestry accomplishments to date include over 223,000 trees planted on 466 acres, 190 acres marked for harvest, 147 acres of hardwood stand improvement by thinning or weeding, 25,120 feet of fire road laid out and constructed, and 34 management plans on 4,207 acres.

In addition to agricultural land treatment, urban sediment plans were reviewed on 117 sites and applied on 17 sites. Five permanent water management ponds have been constructed in subdivisions.

Progress in Structural Measures: Construction of the multiple-purpose floodwater retarding and fish and wildlife resource development structure at Site 1 was completed November, 1975. The construction cost was \$790,756. The structure will be maintained by the Maryland Department of Natural Resources. Land rights (2,050 acres) for the impoundment and recreation development, have been acquired by the State and SCS at a cost of \$2,080,000. This land will, however, be developed by the State for recreation purposes.

Site #2, the proposed floodwater retarding and recreation development structure, will be deleted from the plan. An evaluation by the Soil Conservation Service and the Maryland Department of Natural Resources concluded that the site was not environmentally defensible or economically feasible under Public Law 83-566 planning criteria. The state developed concept plans that will utilize the land already purchased as recreational purposes. This project will be supplemented and closed-out during FY 89.

Benefits: During Hurricane David, (September, 1979), Site #1 stored and released an estimated ten feet of storm water. This storm was estimated to be a 25 year frequency rainfall. The principal spillway was flowing full and the stream below the dam was running just at bank level. The town of Great Mills had some flooding, but was protected from much worse flooding by the completed structure.

OPERATIONAL

SENECA CREEK WATERSHED
Montgomery County, Maryland

Application Number 36

Project in Brief: Authorized - March 1, 1982. Area - 82,500 acres. Sponsors - Montgomery Soil Conservation District, Montgomery County Council and the Maryland National Capitol Park and Planning Commission. The total project cost is estimated to be \$427,100 of which \$321,400 will be borne by PL-83-566 funds and \$105,700 will be borne by other funds. The principal goal of the project is to improve water quality in the Little Seneca Lake, (drainage area 13,300 acres), an emergency water supply and recreation reservoir, under construction by Montgomery County and the Washington Suburban Sanitary Commission. This is to be accomplished by reducing erosion on 3,100 acres of cropland and 400 acres of forest land and by reducing animal waste runoff for eight dairy operations. In addition to improving water quality, the project will protect the agricultural resource base.

Progress in Land Treatment: Of the 38 operating units (8,900 acres), 26 units totaling 4,849 acres are under cooperative agreement with the Montgomery Soil Conservation District. Approximately 2,903 acres have a conservation plan. Six long-term contracts for accelerated land treatment have been signed, committing \$56,915 of federal funds. Land treatment practices now on the land include the following:

	<u>Progress To Date</u>
Conservation Cropping System	4,368 acres
Conservation Tillage System	5,536 acres
Crop Residue Use	749 acres
Stripcropping	143 acres
Forest Land Management	64 acres
Grass Waterway	6 acres
Spring Development	1 (No.)

Financial assistance in this watershed is limited to two active contracts. Steps are being taken to modify these contracts because of inactivity and close-out the project because of the lack of landowner interest.

OPERATIONAL

UPPER CHESTER RIVER WATERSHED

Kent and Queen Anne's Counties, Maryland
Kent and New Castle Counties, Delaware

Application No. 41

Project in Brief: Authorized - February 2, 1983. Area - 90,500 acres (Maryland 62,445 acres, Delaware 28,055 acres). Most of the land in the watershed is privately owned. Publicly owned land represents about 7.0 percent of the watershed. Sponsors - Delaware Department of Natural Resources and Environmental Control; Queen Anne's and Kent County Soil Conservation Districts; and County Commissioners of Queen Anne's and Kent Counties, Maryland. Estimated total project cost - (Maryland Only) \$2,541,550 (\$1,208,900 PL-566 and \$1,332,650 other). Principal problems - damage to agricultural land, towns, and roads by flood water and poor drainage. Land use (total for Maryland and Delaware) - cropland 60 percent, forest land 30 percent, urban residential 5 percent, pasture 2 percent, other 3 percent.

In Maryland, as part of the general conditions for project approval by the State, the following conditions will be satisfied prior to construction.

1. Fifty percent of farmland in the drainage area of the PDA will have an updated conservation plan (prepared or updated in the last ten years) approved by the local soil conservation district, and fifty percent of the cropland upstream from the proposed channel work will be adequately protected (at or below T) as defined in the SCS reporting system.
2. All farms which directly outlet to a Federally cost-shared ditch, must have an updated SCD-approved conservation plan.

Progress in Land Treatment: In the Maryland portion of the watershed, there are approximately 357 farm units. Of these 249 are district cooperators. Conservation plans have been prepared on 43,524 acres. Of the 21,612 acres needing reduced tillage systems, 14,602 acres have been treated. Thirty-five percent of the needed open drainage has been installed as well as 40% of the needed tile drains.

Progress in Structural Measures: The Upper-Chester River Supplemental Environmental Impact Statement (SEIS) began interagency review in October 1986. Because of several conflicting issues the National Headquarters for the Soil Conservation Service decided to stop all plans to provide federal assistance for a structural project. The decision to develop a land treatment plan will be decided later. The project is now in an inactive status.

OPERATIONAL

WEST AND RHODE RIVERS WATERSHED
Anne Arundel County, Maryland

Application Number 42

Project in Brief: Authorized - February 26, 1987. Area - 16,325 acres. Sponsors - Anne Arundel Soil Conservation District. The total project cost is estimated to be \$201,700, of which \$107,000 will be borne by PL-83-566 funds and \$94,700 will be borne by other funds. The major objective of the project is to reduce soil erosion on cropland to sustain long-term productivity and reduce sediment and nutrient loading to West and Rhode Rivers. The plan suggests the treatment of 1,090 acres of cropland, including 170 acres of cropland converted to woodland and 189 acres to hayland.

Progress in Land Treatment: Of the 48 operating units (11,550 acres), 26 units totaling 8,000 acres are under cooperative agreement with Anne Arundel Soil Conservation District. Approximately 3,075 acres have conservation plans, but approximately 1,250 acres are outdated, 1965 and older. Only a small percentage of needed conservation practices have been installed to date. Land treatment practices now on the land include the following:

	<u>Progress To Date</u>
Stripcropping	80 acres
Obstruction Removal	650 feet
Diversions	807 feet
Grass Waterway	3 acres
Grade Stabilization Structures	1
Cropland Conversion	
Hayland Planting	161 acres
Tree Planting	25 acres

Three long-term contracts for accelerated land treatment have been signed committing \$28,622 of federal funds.

WATERSHEDS IN PLANNING - 2

The following watershed is in detailed planning which is being accomplished in accordance with the requirements of the National Environmental Policy Act and the Council on Environmental Quality's guidelines.

Forge Branch
Linganore Creek

PLANNING

FORGE BRANCH WATERSHED

Application number - 35

Location - Caroline County

Tributary to - Choptank River

Drainage area - 14,500 acres

Sponsored by - Caroline Soil Conservation District
Caroline County Board of Commissioners

Application approved by State Committee - June 17, 1968

Planning authorized - July 5, 1983

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Status - A Notice of Intent to Prepare an Environmental Impact Statement was published in the Federal Register on August 2, 1983. On September 7, 1983 a public meeting was held in Greensboro for the purpose of identifying significant environmental issues. The project is now in an inactive status.

PLANNING

LINGANORE CREEK WATERSHED

Application number - 43

Location - Frederick County

Tributary to - Monocacy River

Drainage area - 56,300 acres

Sponsored by - Frederick Soil Conservation District

Application approved by State Committee - April 21, 1988

Planning authorized - December 20, 1988

Project purposes - Agricultural Waste Management
Watershed Protection
Water Quality Improvement

Status - The watershed Plan will be completed in February 1989. Interagency Review will begin in March 1989.

WATERSHEDS WITH APPLICATIONS PENDING - 4

The following watersheds have had their applications approved by the State Soil Conservation Committee but have not been authorized for planning assistance by the Chief of the Soil Conservation Service.

Marumsco
Turkey Branch
Kings Creek
Pocomoke River

APPLICATION PENDING

MARUMSCO WATERSHED

Application number - 19

Location - Somerset County

Subwatershed of - Chesapeake Bay

Drainage area - 14,000 acres

Sponsored by - Somerset Soil Conservation District
Somerset County Commissioners

Application approved by State Committee - July 2, 1962

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Status - Because the 1962 Field Examination Report indicated that economic justification of the project depended upon enhancement type benefits, which involved bringing new cropland into production, this project was given a low priority.

APPLICATION PENDING

TURKEY BRANCH WATERSHED

Application number - 20

Location - Somerset County

Subwatershed of - Chesapeake Bay

Drainage area - 3,000 acres

Sponsored by - Somerset Soil Conservation District
Somerset County Commissioners

Application approved by State Committee - July 2, 1962

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Status - No action has been taken on this watershed.

APPLICATION PENDING

KINGS CREEK WATERSHED

Application number - 21

Location - Somerset County

Subwatershed of - Chesapeake Bay

Drainage area - 9,096 acres

Sponsored by - Somerset Soil Conservation District
Somerset County Commissioners

Application approved by State Committee - July 2, 1962

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Status - No action has been taken on this watershed.

APPLICATION PENDING

POCOMOKE RIVER WATERSHED

Application number - 37

Location - Somerset, Worcester, and Wicomico Counties Maryland
Sussex County Delaware
Accomack County Virginia

Tributary to - Chesapeake Bay

Drainage area - 236,315 acres

Sponsored by - Somerset County Commissioners
Wicomico County Council
Wicomico Soil Conservation District
Worcester Soil Conservation District
Worcester County Commissioners
Somerset Soil Conservation District
Delaware Department of Natural Resources and
Environmental Control
Eastern Shore Soil and Water Conservation District

Application approved by State Committee - December 15, 1969

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Status - The Pocomoke River Basin Study was completed in 1982. The Study indicated that a feasible PL-83-566 plan could be developed. For further information on this study, see the River Basin Studies section of this report.

WATERSHEDS WITH PLANNING SUSPENDED OR TERMINATED - 10

The following watersheds have been approved for planning but have had planning assistance suspended pending resolution of specific problems or terminated due to a variety of technical and procedural impasses.

Little Antietam
Little Beaver
Corsica River
Big Pipe Creek
Little and Middle Patuxent
Catoctin Creek
Piscataway Creek
Beaver Dam Creek
Upper Casselman River
Big and Little Elk Creek Watershed

TERMINATED

LITTLE ANTIETAM WATERSHED

Application number - 6

Location - Washington County

Subwatershed of - Potomac River Basin

Drainage area - 20,119 acres

Sponsored by - Washington Soil Conservation District
Washington County Commissioners
Little Antietam Public Watershed Association
Maryland Department of Water Resources

Application approved by State Committee - May 1957

Planning authorized - April 15, 1958

Planning terminated - June 1, 1976

Project purposes - Flood Prevention
Municipal Water Supply
Watershed Protection

Planned measures - 2 Multiple purpose impoundments
2 Floodwater retarding dams

Status - A work plan was published in October 1970, however, planning was terminated June 1, 1976 because of little local interest in the project.

TERMINATED

LITTLE BEAVER WATERSHED

Application number - 7

Location - Washington County

Subwatershed of - Potomac River Basin

Drainage area - 5,500 acres

Sponsored by - Washington Soil Conservation District
Washington County

Application approved by State Committee - May 1957

Planning authorized - April 15, 1958

Planning terminated - April 1966

Project purposes - Flood Prevention
Watershed Protection

Status - Planning was suspended in December 1960 when it became apparent that it was not possible to develop a feasible solution to the flooding problem. Planning was terminated in April of 1966. Prior to that, in November 1965 the watershed was made part of the Appalachia Water Resource Study which was completed in April 1967.

TERMINATED

CORSICA RIVER WATERSHED

Application number - 17

Location - Queen Annes County

Subwatershed of - Chesapeake Bay

Drainage area - 15,865 acres

Sponsored by - Queen Annes Soil Conservation District
Queen Annes County Commissioners

Application approved by State Committee - July 2, 1962

Planning authorized - July 26, 1965

Planning terminated - February 26, 1971

Project purposes - Flood Prevention
Recreation
Agricultural Water Management (Drainage)
Watershed Protection

Planned measures - 1 multiple purpose dam
Channel work
Land Treatment

Status - The County Commissioners, one of the sponsors, have indicated they are not willing and able to carry out the work plan at this time. The State Conservationist terminated planning assistance as of February 26, 1971.

SUSPENDED

BIG PIPE CREEK WATERSHED

Application number - 26

Location - Carroll County

Subwatershed of - Potomac River Basin

Drainage area - 123,520 acres

Sponsored by - Carroll Soil Conservation District
Carroll County Commissioners

Application approved by State Committee - December 4, 1964

Planning authorized - December 18, 1967

Plan and EIS completed - June 1976

Planning Suspended - May 1977

Project purposes - Flood Prevention
Municipal Water Supply
Recreation
Watershed Protection

Planned measures - 1 multiple purpose impoundment
Land Treatment

Status - The watershed plan and Environmental Impact Statement was transmitted to Office of Management and Budget June 30, 1976. It had been prepared under phase-in procedures of the Water Resource Council Principles and Standards. Subsequently the Maryland Water Resource Administration on September 14, 1976, indicated that a hydrologic study of the groundwater resources in the project area would need to be conducted before it could approve a plan development permit and other permits needed for installation of the impoundment structure. The plan was withdrawn from OMB in April 1977. Once the groundwater resource has been explored, and if the selected plan remains an impoundment, then the watershed plan and Environmental Impact Statement will need to be revised accordingly to reflect any changes in planning standards since its original development.

TERMINATED

LITTLE AND MIDDLE PATUXENT WATERSHED

Application number - 28

Location - Howard County

Subwatershed of - Chesapeake Bay

Drainage area - 70,000 acres

Sponsored by - Howard Soil Conservation District
Howard County Council

Application approved by State Committee - June 7, 1965

Planning authorized - February 24, 1969

Planning terminated - November 1979

Project purposes - Flood Prevention
Recreation
Watershed Protection

Planned measures - 1 multiple purpose impoundment
Dikes
Flood proofing

Status - Due to the low level of federal financial assistance to the proposed project, planning has been terminated. A final report providing recommendations to relieve flood problems in residential areas as well as other technical information was published in September of 1979

SUSPENDED

CATOCTIN CREEK WATERSHED

Application number - 29

Location - Frederick County

Subwatershed of - Potomac River

Drainage area - 95,000 acres

Sponsored by - Catoctin Soil Conservation District

Application approved by State Committee - October 15, 1965

Planning authorized - July 22, 1969

Planning suspended - September 6, 1973

Project purposes - Flood Prevention
Watershed Protection

Status - Detailed planning assistance was suspended as of September 6, 1973
due to problems encountered in conducting geologic investigations and
lack of consolidated support for the project by the Frederick County
Government.

TERMINATED

PISCATAWAY CREEK WATERSHED

Application number - 34

Location - Prince Georges County

Tributary to - Potomac River

Drainage area - 42,000 acres

Sponsored by - Prince Georges Soil Conservation District
Prince Georges County
Maryland-National Capital Park and Planning Commission

Application approved by State Committee - June 12, 1967

Planning authorized - October 20, 1972

Planning terminated - November 1978

Project purposes - Flood Prevention
Recreation
Watershed Protection

Planned measures - Multiple purpose impoundments

Status - In September 1978, a final Preliminary Investigation report was published. The report indicated that the watershed was not eligible for PL-566 assistance since the costs exceeded the benefits and the lack of flood prevention benefits. Therefore, planning has been terminated.

SUSPENDED

BEAVER DAM CREEK WATERSHED

Application number - 40

Location - Wicomico Creek Watershed

Subwatershed of - Chesapeake Bay

Drainage area - 16,384 acres

Sponsored by - Wicomico Soil Conservation District
Wicomico County Commissioners

Application approved by State Committee - November 1955

Planning authorized - January 6, 1959

Planning suspended - February 9, 1959

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Status - SCS suspended detailed planning in 1959 when the channel system
was improved under an ACP pooling agreement.

TERMINATED

UPPER CASSELMAN RIVER WATERSHED

Application number - 31

Location - Garrett County, Maryland
Somerset County, Pennsylvania

Subwatershed of - Ohio River Basin

Drainage area - 84,100 acres

Sponsored by - Maryland:

Garrett County Soil Conservation District
Garrett County Commissioners
Allegany County Commissioners
Town of Grantsville
Grantsville City Council
Allegany Sanitary Commission
Pennsylvania:
Somerset County Soil and Water Conservation District

Application approved by State Committee - February 21, 1966

Planning authorized - December 9, 1969

Planning terminated - August 27, 1982

Project purposes - Flood Prevention
Municipal Water Supply
Recreation
Watershed Protection

Planned measures - Multiple purpose impoundments

Status - Detailed planning of this watershed was resumed in 1981. It was found that a feasible PL-83-566 plan could not be developed. A final report was published in June, 1982. The report outlined several alternatives that the local people could install that would reduce future flood damage to the Harbison-Walker Refractory (a manufacturer of bricks). Planning was terminated on August 27, 1982.

TERMINATED

BIG AND LITTLE ELK CREEK WATERSHED

Application number - 33

Location - Cecil County, Maryland; Chester County, Pennsylvania

Subwatershed of - Chesapeake Bay

Drainage area - 68,430 acres

Sponsored by - Cecil Soil Conservation District
Cecil County Commissioners
Town of Elkton
Chester County Soil and Water Conservation District (PA)
Chester County Commissioners (PA)

Application approved by State Committee - May 20, 1960

Planning authorized - October 5, 1970

Planning terminated - August 20, 1984

Project purposes - Watershed Protection

Planned measures - Land treatment

Status - A preauthorization planning report was prepared and submitted to the National Headquarters for authorization to change the existing planning authorization from structural to watershed protection. The request was denied because the erosion problems were not significant when compared to other projects in the United States. Therefore, the project was terminated on August 20, 1984.

WATERSHED APPLICATIONS RETURNED TO
STATE SOIL CONSERVATION COMMITTEE - 5

The following applications were returned to the State Soil Conservation Committee because studies showed they were not feasible under the PL-83-566 program.

Patapsco
Middletown Branch
Western Run
Mattawoman Creek
Rehobeth

APPLICATION RETURNED TO
STATE SOIL CONSERVATION COMMITTEE

PATAPSCO RIVER WATERSHED

Application number - 38

Location - Anne Arundel, Carroll, Baltimore, and Howard Counties

Tributary to - Chesapeake Bay

Drainage area - 234,000 acres

Sponsored by - Carroll Soil Conservation District
Carroll County Commissioners
Howard Soil Conservation District
Howard County Commissioners
Baltimore Soil Conservation District
Baltimore County Council
Mayor & City Council of Baltimore
Anne Arundel Soil Conservation District
Anne Arundel County Council
Maryland Port Authority

Application approved by State Committee - December 21, 1970

Planning returned to State Committee - March 12, 1982

Project purposes - Flood Prevention
Recreation
Water Supply
Watershed Protection

Status - A Draft River Basin Study investigating the feasibility of a PL-83-566 project, environmental impacts of such a project, and the willingness of local government to support a PL-83-566 project was completed in October, 1979. The final report was completed in March, 1980. This report indicated that a feasible PL-83-566 plan could not be developed under present criteria. See the River Basin Studies section of this report for further details.

APPLICATION RETURNED TO
STATE SOIL CONSERVATION COMMITTEE

MIDDLETOWN BRANCH WATERSHED

Application number - 30

Location - Dorchester County

Tributary to - Chesapeake Bay

Drainage area - 6,748 acres

Sponsored by - Dorchester Soil Conservation District
Dorchester County Commissioners

Application approved by State Committee - October 15, 1965

Planning returned to State Committee - March 12, 1982

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Status - In June 1968, a Preliminary Investigation Report was published which proposed 13.4 miles of channel work. Due to environmental concerns the sponsors have retained a consultant to make an environmental evaluation of the proposed project and of a wetland by-pass alternative at the lower end of the watershed. Further studies have indicated a feasible PL-83-566 plan could not be developed because of the environmental impacts.

APPLICATION RETURNED TO
STATE SOIL CONSERVATION COMMITTEE

WESTERN RUN WATERSHED

Application number - 23

Location - Baltimore County

Subwatershed of - Chesapeake Bay

Drainage area - 55,000 acres

Sponsored by - Baltimore Soil Conservation District

Application approved by State Committee - August 13, 1962

Planning returned to State Committee - March 12, 1982

Project purposes - Flood Prevention
Watershed Protection

Status - Planning has been suspended as a result of findings presented to the local people in April, 1976, which indicated conventional SCS approaches to providing flood prevention in this watershed were not appropriate. A flood hazard analyses report was prepared for a portion of this watershed in 1975.

APPLICATION RETURNED TO
STATE SOIL CONSERVATION COMMITTEE

MATTAWOMAN CREEK WATERSHED

Application number - 39

Location - Prince Georges and Charles Counties

Tributary to - Potomac River

Drainage area - 50,468 acres

Sponsored by - Prince Georges Soil Conservation District
Maryland National Capital Park and Planning Commission
Board of County Commissioners, Prince Georges County
Charles Soil Conservation District
County Commissioners of Charles County
Maryland Department of Forests and Parks

Application approved by State Committee - March 15, 1971

Application returned to State Committee - May 16, 1983

Project purposes - Flood Prevention
Watershed Protection

Status - A draft Field Examination Report was completed in December, 1978. A Flood Plain Management Study was completed in 1983. The information from this study showed that further PL-566 studies were not warranted.

APPLICATION RETURNED TO
STATE SOIL CONSERVATION COMMITTEE

REHOBETH WATERSHED

Application number - 18

Location - Somerset County

Subwatershed to - Chesapeake Bay

Drainage area - 5,000 acres

Sponsored by - Somerset Soil Conservation District
Somerset County Commissioners

Application approved by State Committee - July 2, 1962

Planning returned to State Committee - January 30, 1984

Project purposes - Flood Prevention
Agricultural Water Management (Drainage)
Watershed Protection

Status - The Tri-State Water Resources Staff conducted a thorough study of potential flooding or drainage problems in the Rehobeth Watershed. Upon completion of the study it was determined that there was no potential for project-type activity in this area.

MARYLAND SMALL WATERSHED PROGRAM STATUS

Appli- cation Number	Watershed Name	Status ¹	Size (Acres)	State Committee	Approved for Planning	Approved for Plan/EIS Completed	Project Approved for Operations	Project Completed	Project Costs ²		
									PL-566	Other	Total
1.	Little Deer Creek	C	10,112	11-54	2-09-55	5-56	9-13-56	6-30-70	282,443	65,886	348,329
2.	Little Youghiogheny River	C	26,275	2-55	4-15-55	3-56	3-14-57	12-31-76	1,900,870	852,496	2,753,366
3.	Timmonstown Branch	C	8,655	3-55	8-25-55	2-57	5-21-57	6-30-63	203,745	150,263	354,008
4.	Gilbert Run	C	28,622	10-55	1-06-56	12-58	8-07-59	12-31-76	2,946,597	702,662	3,649,259
5.	Upper Rock Creek	C	38,765	12-56	1-08-57	12-62	6-20-63	6-30-63	1,414,322	2,822,880	4,237,202
6.	Little Antietam	T	20,119	5-57	4-15-58	-	-	-	-	-	-
7.	Little Beaver	T	5,500	5-57	4-15-58	-	-	-	-	-	-
8.	Long Marsh	C	27,363	7-57	4-15-58	1-60	8-31-60	6-30-75	1,021,901	407,992	1,429,893
9.	Marshyhope Creek ³	O	40,240	9-26-57	6-06-58	1-64	8-19-64	-	4,578,154	2,282,428	6,860,582
10.	Aydelotte	C	12,470	9-59	8-15-61	8-62	8-30-62	7-01-71	520,132	260,000	780,132
11.	Ninepin Branch	C	6,300	7-26-61	6-18-62	3-63	4-01-63	6-30-68	167,384	94,843	262,227
12.	Franklin Branch	C	3,162	7-26-71	5-20-63	3-64	6-25-64	5-31-69	82,461	55,204	137,665
13.	Coonfoot Branch	C	3,752	7-26-61	5-20-63	4-64	6-30-64	5-31-69	89,795	58,708	148,503
14.	Shingle Landing	C	11,670	7-26-61	10-23-67	8-68	11-26-68	9-30-81	537,200	296,300	833,500
15.	Dividing Creek	C	41,900	7-26-61	7-15-68	12-73	7-19-74	9-30-83	1,298,984	742,300	2,041,284
16.	Upper Choptank River ³	O	10,260	11-06-61	6-18-62	5-65	9-10-65	-	1,183,377	724,072	1,907,449
17.	Corsica River	T	15,865	7-02-62	7-26-65	-	-	-	-	-	-
18.	Rehobeth	AR	5,000	7-02-62	-	-	-	-	-	-	-
19.	Marumoco	AP	14,000	7-02-62	-	-	-	-	-	-	-
20.	Turkey Branch	AP	3,000	7-02-62	-	-	-	-	-	-	-
21.	Kings Creek	AP	9,096	7-02-62	-	-	-	-	-	-	-
22.	Upper Manokin	C	7,883	7-02-62	2-15-65	10-65	12-01-65	-	341,900	252,200	594,100
23.	Western Run	AR	55,000	8-13-62	-	-	-	-	-	-	-
24.	Passerdyke	C	7,840	11-15-63	7-26-65	4-66	5-24-66	6-30-76	526,966	189,000	715,966
25.	Goldsboro	O	9,250	12-20-63	9-19-66	7-67	8-25-67	-	1,008,609	604,860	1,613,469
26.	Big & Little Pipe Creek	S	123,520	12-04-64	12-18-67	6-76	-	2,862,500	3,539,500	6,402,000	
27.	St. Mary's River	O	20,000	6-07-65	7-25-66	6-69	9-29-70	-	4,268,785	8,805,891	

MARYLAND SMALL WATERSHED PROGRAM STATUS--Continued

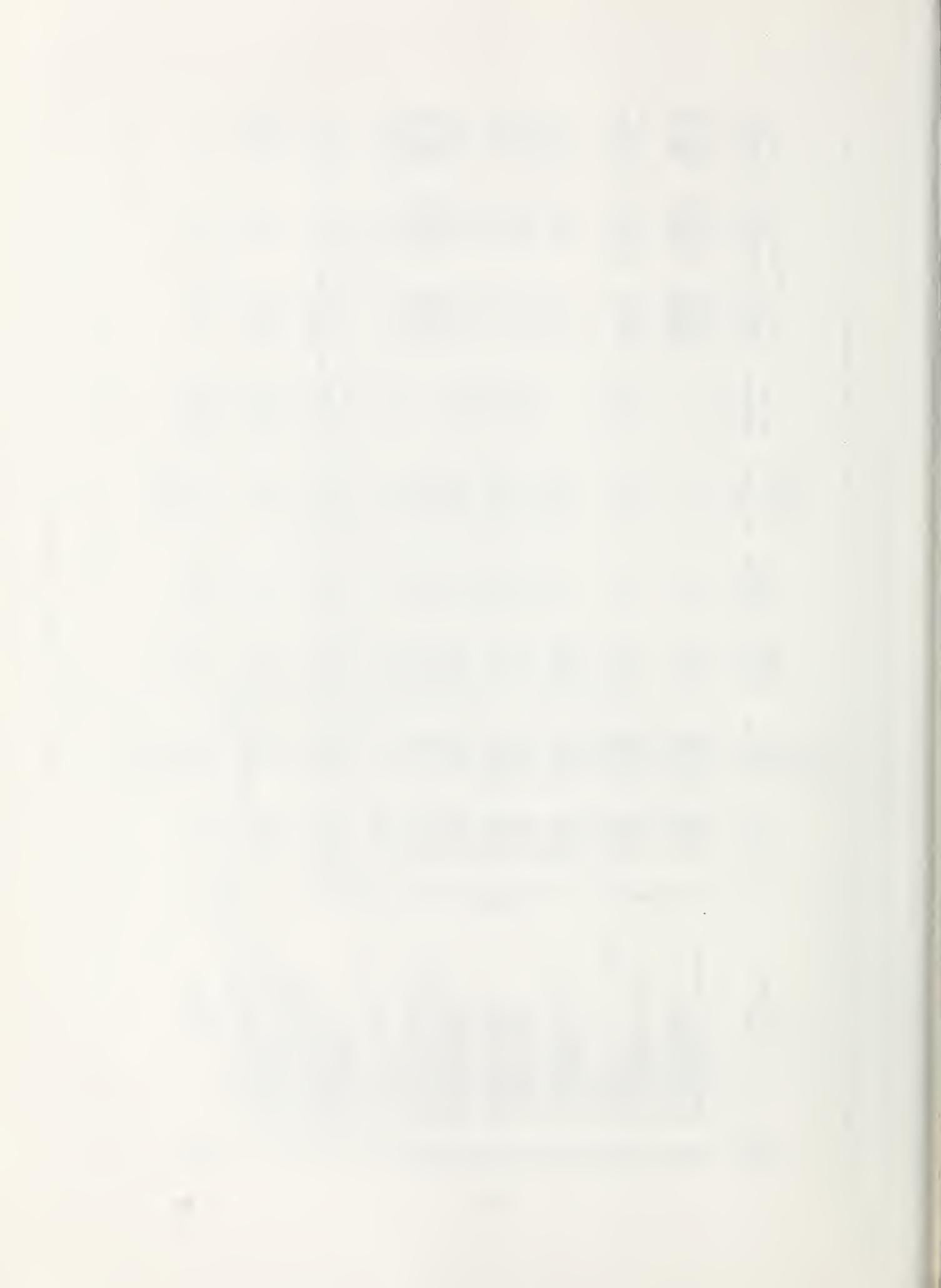
Application Number	Watershed Name	Status ¹	Size (Acres)	State Committee	Approved for Planning	Approved for EIS Completed	Plan/EIS Completed	Operations	Project Completed	Project Costs ²		
										PL-566	Other	Total
28.	Little & Middle Patuxent	T	70,000	6-07-65	2-24-69	-	-	-	-	990,300	4,053,000	5,043,300
29.	Catoctin Creek	S	95,000	10-15-65	7-22-69	-	-	-	-	2,79,100	2,309,700	4,988,500
30.	Middletown Branch	AR	6,748	10-15-65	-	-	-	-	-	264,540	95,600	360,140
31.	Upper Casselman River	T	84,100	2-21-66	12-09-69	-	-	-	-	1,820,200	2,630,300	4,450,500
32.	Piney Run	C	11,700	2-21-66	4-10-67	5-68	8-27-69	9-30-81	-	826,500	2,553,800	3,380,300
33.	Big and Little Elk Creeks	T	68,430	5-20-66	10-05-70	-	-	-	-	-	-	-
34.	Piscataway Creek	T	42,000	6-12-67	10-20-72	-	-	-	-	-	-	-
35.	Forge Branch	P	14,500	6-17-68	7-05-83	-	-	-	-	-	-	-
36.	Seneca Creek	O	82,479	2-17-69	6-30-75	2-82	3-01-82	-	-	321,400	105,700	427,100
37.	Pocomoke River	AP	234,000	12-15-69	-	-	-	-	-	-	-	-
38.	Patapsco River	AR	236,315	12-27-70	4-15-58	-	-	-	-	-	-	-
39.	Mattawoman Creek	AR	50,468	3-15-71	-	-	-	-	-	-	-	-
40.	Beaverdam Creek	S	16,384	11-55	1-06-56	-	-	-	-	-	-	-
41.	Upper Chester River	O	90,000	1-20-72	2-10-77	7-82	2-02-83	-	-	1,208,900	1,332,600	2,541,550
42.	West and Rhode Rivers	O	16,325	4-11-86	4-21-86	12-86	2-26-87	-	-	107,000	94,700	201,700
43.	Linganore Creek	P	56,300	4-21-88	12-20-88	-	-	-	-	2,426,400	1,252,500	3,678,900

1 C = Completed
O = Operations
P = Planning
FE = Field Examination

AP = Application Pending
S = Suspended
T = Terminated
AR = Application Returned to State Soil Conservation Committee

2 Costs are based on best available source e.g. work plan, 207 report etc. (nominal dollars).

3 Delaware has administrative responsibilities. Maryland acreage and costs shown here.



RIVER BASIN STUDIES

COMPLETE

Delmarva River Basin Survey - The study area includes all of the Maryland Eastern Shore below the Chesapeake and Delaware Canal, the State of Delaware below the Canal, and the Virginia Eastern Shore. The area covers 7,500 square miles, is about 174 miles long, 74 miles wide at the widest point, and includes approximately 3,558,000 acres of land and 1,282,000 acres of water.

The purpose of the study was to evaluate the water and related land resources; identify problems associated with their use and development; and propose alternatives for the orderly development of these resources.

Specific study objectives were to:

- 1) Improve water and related land resource management.
- 2) Improve municipal, industrial, domestic, and irrigational water supply.
- 3) Enhance and increase recreational opportunities.
- 4) Maintain and enhance fish and wildlife habitat.
- 5) Improve water quality.

The study findings and conclusions suggests that a coordinated plan is needed to meet the water and land resource problems and to assure that the conflicts and complementary situations between agricultural drainage projects and environmental concerns are recognized. A suggested plan was displayed emphasizing early action measures that can resolve some of the conflicts.

Management tools resulting from the study included:

- 1) Updated land use study by major CNI sub-basins.
- 2) Delmarva Wildlife Habitat Analysis System.
- 3) Wildlife Biologic Priority Areas (mapped by CNI sub-basin).

The Patapsco River Basin Study was completed in 1980. It is the culmination of a 20-month study coordinated through the Baltimore Regional Planning Council and the USDA Soil Conservation Service. Many other agencies of local, state, and federal governments cooperated in completing the report.

The Patapsco River Basin Study area includes the watersheds of both the Patapsco River and Gwynns Falls. It is located in Anne Arundel, Baltimore, Carroll, and Howard Counties, and Baltimore City.

Most of the water resource problems in the study area relate to urban flood damage along the lower Patapsco and its tributaries, the main stem of Gwynns's Falls, and Maiden's Choice Run. At the initiation of the study in 1978, it was determined by the Patapsco River Basin Coordinating Committee that the major emphasis should be on solving the flooding problems. Thus, the major emphasis of this study was on the flooding problems and possible solutions, with brief discussions of problems in water supply, water quality, erosion and sedimentation, and recreation.

The objectives of the study were: 1) to determine whether a feasible PL-566 flood prevention project existed anywhere in the Study Area, 2) if a project existed, were there potential sponsors for such a project and was it environmentally acceptable, and 3) if a project did not exist, to make recommendations about what other courses of action could be followed.

The initial effort of the study was to inventory the flood damages. In order to do this, it was necessary to determine the flood levels and the associated damages.

Hydrologic and hydraulic models were developed in cooperation with the Maryland Water Resources Administration. These models were used to determine flood levels for Tropical Storm Agnes, plus the 100-year frequency flood for both present and future land uses.

Flood damages were determined using a damage survey conducted by the U.S. Army Corps of Engineers in conjunction with additional surveys done during the study. This information was then combined with the flood level data to determine amounts of flooding damage for Agnes, the 100-year flood, and lesser floods.

The conclusions reached by the flood damage analysis indicate that although flood damages are high during major floods, these floods do not occur frequently. The 10 percent chance (10-year frequency) flood causes minimal damage with the 1 percent chance (100-year frequency) flood causing relatively major damage, thus making the average annual damages low.

Based on the procedures for economic analysis set forth in the Water Resources Council's Principles and Standards, it was determined that at this time there is no feasible structural flood prevention project under authority of the Watershed Protection and Flood Prevention Act, PL 83-566, as amended. A federally assisted structural flood prevention project must have economic benefits exceeding costs.

No structural alternative examined during this study meets this criterion. However, a nonstructural project may be feasible for portions of the study area.

The final report outlined recommendations to help solve identical problems. The Baltimore Regional Planning Council has organized a committee from effected jurisdiction, state and federal agencies to implement the study recommendations.

The Pocomoke River Special Study - The Pocomoke River is a tributary of the Chesapeake Bay. There are 316,100 acres draining into the Pocomoke River which include lands from three states, Maryland, Delaware, and Virginia and five counties, Worcester, Somerset and Wicomico Counties, Maryland; Sussex County, Delaware; and Accomack County, Virginia.

The purpose of the study was to develop a comprehensive resource management plan that would outline serious problems, the effect of existing programs on meeting current and future needs, alternative plans that can fulfill future needs, recommendations for solutions to problems using a cost effective and environmentally sound approach, and the identification of programs that can provide technical and financial assistance for implementation.

The overall concern in the Study was the lack of maintenance on the river and its tributaries. The focal point was the 14.4 miles of channelized stream from the debris dam to the Delaware line. The principal basin-wide concerns were soil wetness and flooding, erosion, and sediment.

Management opportunities to improve or enhance economic and environmental resources throughout the basin were also addressed. They were: 1) forest resources; 2) recreation; 3) water quality; 4) biological resources and ecosystems; 5) areas of natural beauty, and 6) cultural resources.

The Study was coordinated from the very beginning with the Maryland Department of Natural Resources to avoid conflicts with their Scenic River Plan. The joint effort resulted in a combined document between the two agencies. The USDA document entitled, Pocomoke River Management Plan, detailed the water resource aspects of the river as the main report with the complete scenic river plan as Appendix B, detailing scenic and cultural resources.

Specific recommendations included suggestions and measures that could:

- 1) Reduce soil wetness and flooding for the drainage areas above the 14.4 miles of channelized Pocomoke and the Rehobeth watershed.
- 2) Reduce erosion and resulting sedimentation basin-wide.
- 3) Increase recreation opportunities.
- 4) Enhance biological resource and ecosystems.
- 5) Maintain and/or improve the existing water quality.
- 6) Maintain the free-flowing condition of the water.

- 7) Preserve and/or interpret the archeological, historical, and cultural features within the river corridor.
- 8) Protect the river's outstanding scenic qualities.

One of the recommendations from the Study included the utilization of existing maintenance rights-of-way as nature or hiking trails. Close coordination between the district conservationist, Worcester County and the Worcester Soil Conservation District Board of Supervisors has resulted in early implementation for part of this recommendation. Funds were obtained from the U.S. Department of Labor through its Green Thumb Program to begin clearing a 28-mile path along the scenic Pocomoke River to serve as both a fire trail and nature walk.

West Chesapeake Cooperative River Basin Study - The study area includes the Maryland western drainage of the Chesapeake Bay known as the western shore. The area consists of fifteen counties covering 6,232 square miles. The major drainage basins are the Potomac River, Patuxent River, Patapsco River, and Gunpowder River.

The overall objectives of the study were to identify the loss of soil productivity due to excessive soil erosion on cropland, damages resulting from upstream flooding, and identify alternative solutions that can be implemented by USDA project action programs.

A plan of work was developed for three watershed protection projects, Gillis Falls, Linganore Creek and West and Rhode Rivers. No flood prevention watersheds were identified. Preauthorization planning reports were developed for two of these watersheds. These reports were used to determine if funding from the Soil Conservation Service (SCS) would be available to plan and implement an accelerated land treatment program.

The Preauthorization Planning Report and Plan of work for the West and Rhode Rivers watershed was completed in December 1985. Planning was completed in December 1986 and authorized for federal assistance on February 26, 1987.

This watershed is located in southeastern Anne Arundel County. Cropland represents 14 percent (2,220 acres) of the total land use (16,325 acres). Soil erosion rates are excessive on 1,224 cropland acres (see details under operational watersheds).

The Linganore Creek watershed Preauthorization Planning Report was completed in February 1987. Authorization to do detailed planning was granted on December 20, 1988 (see details under watersheds in planning).

All planning efforts in the West Chesapeake Cooperative River Basin under RB-09 funds ceased in September 1986.

Active

Chesapeake Cooperative River Basin Study - The study was requested by the Maryland Department of Agriculture (MDA) and the Maryland Department of the Environment (MDE) in order to develop quantitative data for prioritizing watersheds based on the highest nonpoint source loads from agriculture. The emphasis is on nutrients, sediment and animal wastes.

The study area is the entire drainage of the Chesapeake Bay in Maryland. The basin area represents 5,931,000 acres which is approximately 97 percent of Maryland's total land area of Maryland's total land area of 6,138,880 acres. There are approximately 1,423,400 acres of cropland, 379,600 acres of pastureland, 2,390,200 acres of forestland, and 1,737,800 acres of other uses (residential, commercial, universities, military bases, state and federal lands, etc.).

The major drainage basins are the Potomac River, Patuxent River, Patapsco River and Gunpowder River on the western shore; and the Choptank River, Nanticoke River, Wicomico River, Pocomoke River, Chester River, Elk River, and Transquaking River on the Eastern Shore.

The overall concern in the study area is the impact nonpoint source agricultural pollution has on water quality in state waters and the Bay. The "Statewide Agriculture Water Quality Management Plan," the "Chesapeake Bay Initiatives," the "Priority Watersheds for the Potential Release of Agricultural Nonpoint Phosphorus and Nitrogen," and the "Maryland Agricultural Cost-Share Program (MACS)" are all designed to address water quality problems by establishing goals and objectives and providing technical and financial assistance.

The State of Maryland and the local soil conservation districts are concerned with the effectiveness of these programs, as far as improving water quality and whether or not local critical eroding areas within watersheds are getting the highest priority for technical assistance and cost sharing funds.

The study will result in a planning report that can be used by the districts to address critical conditions within a district and in statewide "priority watersheds." This report will be a more refined evaluation and ranking of agricultural watersheds in the state based on agricultural nutrient release with conservation practices already applied. SCS, in cooperation with the U.S. Forest Service (USFS), will prepare the report.

The report will be used by SCS and the state as a scheduling guide in carrying out the conservation provisions of the Food Security Act and the "Statewide Agriculture Water Quality Management Plan." The study will be used to prioritize watersheds that have an adverse effect on the Bay. It will also be used to channel resources and provide the framework for requesting additional assistance from other sources. The study is scheduled for completion in October 1989.

FLOOD PLAIN MANAGEMENT STUDIES

These studies provide flood plain information to local authorities for their use in flood plain management. Data is given for floods ranging from the 500-year to 2-year event. Flood plain management studies are performed by the Soil Conservation Service in cooperation with the Maryland State Department of Natural Resources, Floodplain Management Division. Studies are requested by local authorities and performed with priorities established by the State.

Complete

1. Western Run and Tributaries, Baltimore County, Maryland.

The study gives data on the following streams. Western Run (12.5 miles), Beaverdam Run (3.3 miles), Piney Run (1.7 miles), Black Rock Run (2.5 miles), Delaware Run (23.1 miles), McGill Run (1.3 miles), Indian Run (2.0 miles), Slade Run (2.0 miles) and Longnecker Run (0.8 miles). The study was completed in 1975.

2. Little Catoctin Creek and Tributaries, Frederick, County, Maryland.

Data is given for 8.6 miles of Little Catoctin Creek and for nine tributary streams totaling 9.0 miles in length. The report was completed in 1977.

3. Collington Branch, Prince Georges County, Maryland.

Topographic, hydraulic, hydrologic and flood plain resource data were collected for the 11 mile reach of Collington Branch from the City of Bowie to the City of Upper Marlboro and for Black Branch and East Branch, tributaries to the main stream. The study was completed in 1980.

4. Gwynns Falls, Baltimore City and County, Maryland.

Topographic, hydraulic, hydrologic and flood plain resource data were collected for the 20-mile reach of Gwynns Falls from Reistertown to Baltimore Harbor and for its tributaries Red Run, Scotts Level Run, Horsehead Branch and an unnamed tributary. The study was completed in 1981.

5. Mattawoman Creek, Prince Georges and Charles County, Maryland.

This study includes the flood plain along 34 miles of Mattawoman Creek and its tributaries. The study was completed in 1983. It provides water surface elevations and peak stream flows for present condition and future condition floods of the 0.2, 1, 2, 10, and 50 percent chance of occurrence in the Mattawoman Creek Watershed in Prince Georges and Charles Counties, Maryland, for the main stem of the Mattawoman Creek and its three major tributaries. The present condition 100-year flood plain is mapped and stream profiles are plotted for the present condition floods.

6. Elk Creek, Cecil County, Maryland and Chester County, Pennsylvania.

The Big and Little Elk Creek watershed drains an area of 68,430 acres located in the Northeastern corner of Maryland, and the Southeastern corner of Pennsylvania. The major concerns involve flooding, sediment and erosion and the problem they are causing the City of Elkton.

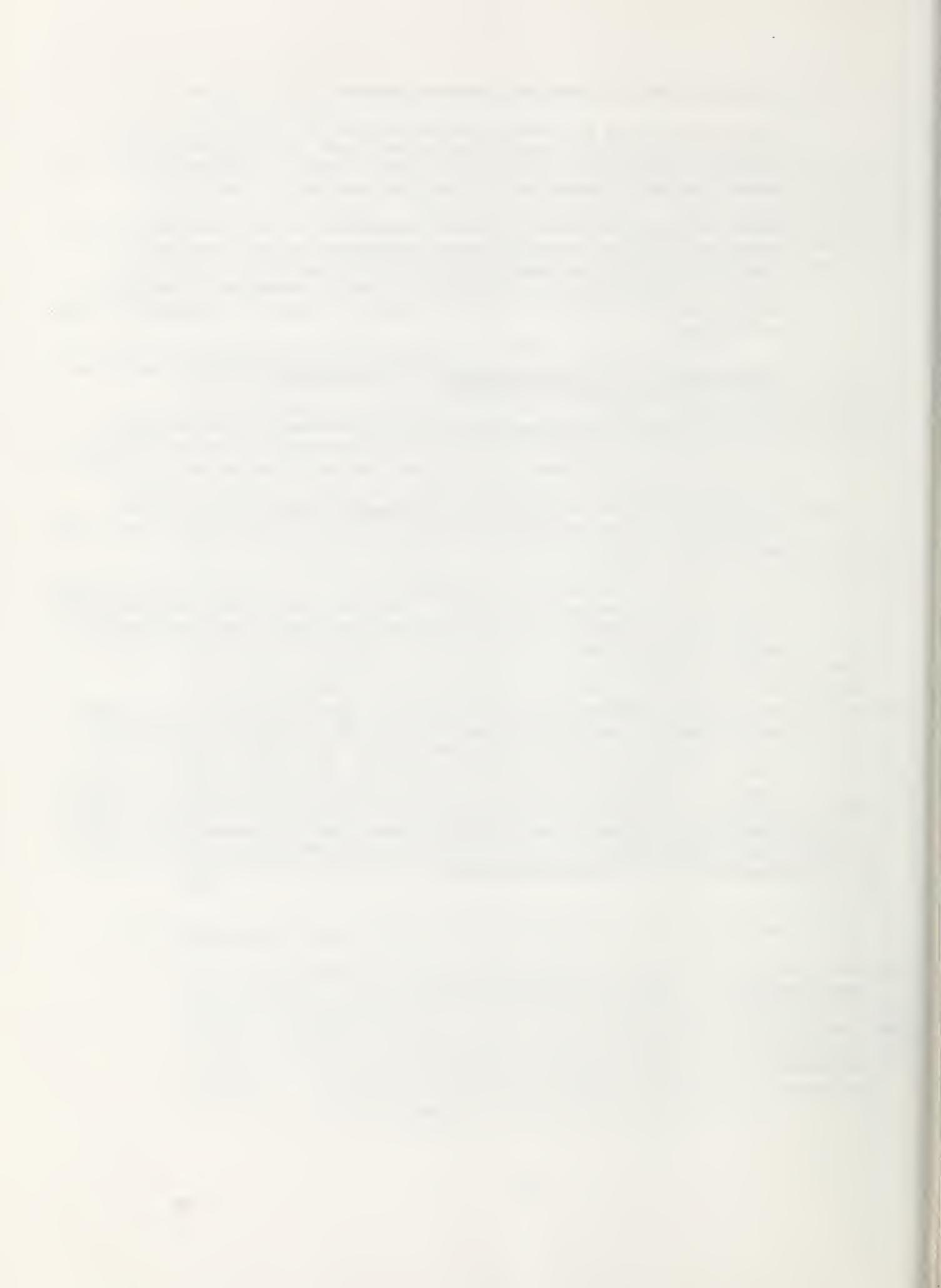
The flood plain management study was completed in 1984. Emphasis in this study report was on relieving flood conditions, in the Town of Elkton through flood plain management strategies and measures. Efforts to accelerate land treatment application through a watershed protection project failed in August, 1984 when technical assistance under PL-566 was terminated.

7. Zekiah Swamp and Tributaries Flood Plain Management Studies, Charles and Prince George's Counties, Maryland.

The Zekiah Swamp headwaters begin near Cedarville in Prince George's County and eventually run into the Wicomico River. Ninety-four percent of the 66,300 acre watershed is in Charles County. Charles County and the Tri-County Council are concerned about the loss of critical natural resource areas to other land uses, increased erosion and resulting sedimentation from development, deterioration of water quality, and flood plain encroachment.

In their effort to develop a management plan to manage the swamp resources they formed the Zekiah Swamp AD HOC Committee. This committee consisting of Federal, State and local agencies and interested groups were asked to collect resource data in their area of expertise for inclusion into the management plan.

This study completed in September 1985, assessed flooding, both present and future, for the Zekiah Swamp main and the tributaries of Clark Run, Kerrick Swamp, Piney Run, and Jordan Swamp. The study concluded that urban flooding is almost non-existing except for a few yards. The major problem is potential flooding in prime development areas along the above mentioned tributaries. This study provided the county with water surface elevations and peak storm flows for present and future conditions floods. These included the 0.2, 1, 2, 10, and 50 percent chance of occurrence on the main and the four tributaries.



FLOOD INSURANCE STUDIES

Flood insurance studies provide information to enable the determination of flood hazard areas and actuarial flood insurance rates for communities participating in the National Flood Insurance Program. The studies are performed by the Soil Conservation Service under contract to the Federal Emergency Management Agency (FEMA) by the authority of the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The level of detail and the extent of the studies are agreed to by local authorities and by FEMA. The studies provide mapping for the 500-year and 100-year flood plains and water surface profiles for flood events ranging from the 500-year to 10-year events.

Complete

1. Little Paint Branch, Prince Georges County, Maryland.

This study covered 6.2 miles of the stream beginning at University Boulevard and ending at the Prince Georges - Montgomery County line. Little Paint Branch is a tributary of the Northeast Branch of the Anacostia River. The study was completed in 1971.

2. Indian Creek, Prince Georges, County, Maryland.

Like Little Paint Branch, Indian Creek is a tributary to the Northeast Branch of the Anacostia River. The study included the 5.3 mile stream reach from Greenbelt Road to Ammendale Road and was completed in 1971.

3. Collington Branch, Prince Georges County, Maryland.

About 11 miles of Collington Branch from Route #197 at Bowie to its confluence with Western Branch was covered by this study in 1971.

4. Tinkers Creek, Prince Georges County, Maryland.

The study covered some 8.1 miles of Tinkers Creek from Old Branch Avenue to its confluence with Piscataway Creek and was completed in 1971.

5. Pea Hill Branch, Prince Georges County, Maryland.

This stream, a tributary of Tinkers Creek, was studied for 3.5 miles from Maryland Route #5 to its mouth. The study was completed in 1971.

6. Selected Streams and Tidal Areas, Worcester County, Maryland.

The study area was defined as that area in the county south of Bishop, east of Route #610, north of Route #376 and west of the Isle of Wight Bay. The streams studied were:

- a. Birch Branch (3.8 miles), Middle Branch (4.6 miles) and Church Branch (3.5 miles) of Shingle Landing Prong of St. Martins River.
- b. Windmill Creek (1.1 miles) and tributary (0.4 miles), Spring Branch (0.6 miles) and two tributaries (0.5 miles and 0.3 miles) also of St. Martins River.
- c. Beaverdam Branch (about 0.9 miles) and its tributary (about 0.6 miles) of Manklin Creek.
- d. Taylorville Creek (2.5 miles) and two unnamed tributaries (1.0 miles and 0.3 miles) plus Crippen Branch (2.5 miles) tributary to Turnsville Creek.
- e. Herring Creek (1.1 miles)
- f. Kits Branch (2.7 miles) and tributaries (0.3 miles, 0.4 miles, and 1.0 miles) of Trappe Branch.

Tidal areas were also studied. The report was completed in 1971.

7. Town of Betterton, Kent County, Maryland

This study covers 1.4 miles of coastline affected by tidal flooding.

8. Town of Rock Hall, Kent County, Maryland.

This study provides data for 3.7 miles of coastline with tidal flooding and delineates the 100-year flood plain for 0.1 miles of Gray's Inn Creek within the town limits.

9. Town of Chestertown, Kent County, Maryland.

This study includes data for 1.3 miles of the Chester River and 0.6 miles of Radcliffe Creek within the town limits.

10. Town of Millington, Kent County, Maryland.

This study provides data for 0.9 miles of the Chester River through the community. About 0.1 miles of Cypress Branch was studied to determine the 100-year flood plain.

11. Kent County, Unincorporated, Maryland.

This study covered 36 miles of coastline affected by tidal flooding from the Chesapeake Bay and the Chester River. Sixty-three miles of streams within the county were studied by detailed methods and another 92 miles of streams had the 100-year flood plain delineated by approximate methods. The study was completed in 1983.

PART II

RURAL ABANDONED MINE PROGRAM (RAMP)

RURAL ABANDONED MINE PROGRAM (RAMP)

RAMP is authorized by Section 406 of the Surface Mining Control and Reclamation Act of 1977, for the purpose of restoring to a productive use rural lands which were adversely affected by past coal mining practices. The program is administered by the U.S. Department of Agriculture's Soil Conservation Service (SCS), and may receive up to 20 percent of the money deposited in the Abandoned Mine Reclamation Fund.

The Program provides technical and financial assistance to land users who voluntarily enter into five year contracts for the reclamation of eligible abandoned mined lands. A reclamation plan is required for financial assistance under the Program. The plan is prepared by the land user with SCS technical assistance and states what will be done to reclaim the land each year and the amount of cost-share assistance involved.

Maryland has received 22 applications covering 216 acres of abandoned mine lands in two counties (see figure 1) under the RAMP program since 1980. Problems associated with abandoned mine lands consist of dangerous mine openings, hazardous water impoundments and highwalls, mine subsidence, old mine structures, health and safety hazards and poor visual quality.

Maryland has shown good progress in implementation of the rural abandoned mine program during fiscal year 1988. During the year, four reclamation contracts were signed that will reclaim 32 acres of abandoned mine land. Construction has been completed on 19 reclamation contracts which has reclaimed 116 acres of abandoned mine land. The reclamation work contributed to correcting subsidence conditions, eliminating hazardous water impoundments and reducing soil erosion and storm runoff. There are excellent vegetative stands on all of the sites. Very little maintenance is anticipated on those sites.

The Rural Abandoned Mine Program has been successful because it allows participants to voluntarily agree to reclamation and to help plan and implement needed reclamation. Benefits of the Rural Abandoned Mine Program have been recognized by Soil Conservation Districts, the State Soil Conservation Committee, Maryland Department of Agriculture and other conservation groups in Maryland. The sites reclaimed have been returned to beneficial use and health and safety hazards eliminated.

GARRETT COUNTY

RURAL ABANDONED MINE PROGRAM

No.	Common Name	Landowners	Acres	Date Contract Signed	Date Reclamation Completed	Problems	Description of Work Completed
1	Garrett County Commissioners Clifford O. Reall Buffalo Coal Co.	Garrett County Commissioners Clifford O. Reall Buffalo Coal Co.	13	2/11/80	2/11/85	Mine openings, small high walls adjacent to mine openings, acid producing material exists. Safety and health hazards.	Total Cost: \$144,598. Eliminated mine openings and acid producing material. Replaced utility poles, installed diversion-2,250 LF, rock lined ditch-130 LF, subsurface drainage-350 LF, 12 foot wide access road-150 LF, sediment traps 4 ea. Critical area planting-12.5 Ac.
2	Garrett County Commissioners	Garrett County Commissioners J. P. Hoffman Nancy Hoffman	15	9/29/80	9/29/85	Excessive erosion. Lack of adequate sediment controls.	Total Cost: \$310,000. Eliminated sediment leaving site. Installed one sediment basin, rock lined diversion-3,700 LF, subsurface drainage-700 LF, critical area planting-15 Ac.
3	County Commissioners of Garrett County Buffalo Coal Co.	Buffalo Coal Co. Hoffman and L. Hunter	7	9/18/80	9/18/85	Pit opening, trash, and garbage dump. Poor visual quality.	Total Cost: \$98,000. Eliminated open pit and garbage. Installed one sediment basin, subsurface drainage-500 LF critical area Planting-7 Ac., rock lined diversion maintenance-1,500 LF.
4	County Commissioners of Garrett County John E. and Thelma V. Davis	John E. and Thelma Davis and Ernest Gregg, Jr.	8	7/2/81	7/2/86	Mine openings, coal residue areas, health and safety hazards.	Total Cost: \$55,809. Eliminated mine openings and coal residue areas. Established critical area Planting-8 Ac., diversion maintenance-700 LF, rock lined waterway maintenance--100 LF.
5	County Commissioners of Garrett County Ernest Gregg William, Bernice and Lowell Merrell	Ernest Gregg William, Bernice and Lowell Merrell	11	7/2/81	7/2/86	Coal mine openings, coal residue areas, drainage areas, health and safety hazards.	Total Cost: \$77,387. Eliminated coal mine openings, residue and drainage areas. Installed one sediment basin, critical area planting-11 Ac.
6	County Commissioners of Garrett County John E. and Thelma Davis.	Garrett County Commissioners John E. and Thelma Davis and Ernest J. Greggs, Jr.	8	7/2/81	4/21/86	Coal residue areas, mine openings, health and safety hazards, poor visual quality.	Total Cost: \$55,809. Eliminated coal residue areas and mine openings. Improved visual quality by grading and seeding, critical area planting-8 Ac. Installed rock lined waterway-1,000 LF, diversion maintenance-700 LF.

RURAL ABANDONED MINE PROGRAM

GARRETT COUNTY

No.	Common Name	Landowners	Acres	Date Contract Signed	Date Reclamation Completed	Problems	Description of Work Completed
7	County Commissioners of Garrett County Bowser Site	County Commissioners of Garrett County Stanley Sisler Ruth and Douglas Bowser, Robert and Retha Pike	23	8/20/84	8/20/89	Strip mine on Upper Freeport Coal. Acid soil, pollution problem, active erosion occurring within mine area.	Total Cost: \$59,300. Eliminated strip mine, pollution problem and erosion. Established critical area planting-23 Ac., wildlife planting-2,500 plants.
8	Douglas Coal Co. Commissioners of Garrett County Ernest Gregg, Jr. William, Bernice	Douglas Coal Co. Catharine Polino	9	9/3/86	9/3/91	Surface water contaminates areas. Several deep mine openings, acid runoff, health and safety hazards.	Total Cost: \$76,300. Eliminated contaminated surface water, mine openings and acid runoff. Installed subsurface drainage-1,000 LF, rock lined waterway-1,000 LF, critical area planting-9 Ac.
9	Robert O. Harvey	Robert O. Harvey	10	9/3/86	9/3/91	Large cuts, vehicle high walls, surface water, and safety hazard.	Total Cost: \$84,600 Eliminated cuts, walls and surface water. Installed subsurface drainage-600 LF, rock lined waterway-500 LF, one pond, diversion-1,200 LF, fencing-2,000 LF, critical area planting-10 Ac.
10	Merrill/Davis Claude Harvey Site No. 1	Claude Harvey	22	6/22/87	6/22/92	Surface water impounded, health and safety hazards. Poor visual quality.	Total Cost: \$123,000. Eliminated water impounded, installed diversion-700 LF, critical area planting-22 Ac.
11	Harvey Site No. 2 Garrett County	Claude Harvey L. Hunter	6	8/24/87	8/24/92	Coal residue areas, safety hazard.	Total Cost: \$30,000. Eliminated coal residue areas. Created small wetland area, critical area planting-6 Ac.
12	Ralph and Hallie Moon Site	Hallie Moon and Ralph Moon	25	2/1/88	2/11/93	Two open pits, safety hazard.	Total Cost: \$215,000 Eliminated pits-installed subsurface drainage-1,000 LF, one sediment basin, critical area planting-25 Ac., wildlife habitat planting-4 Ac.
13	Tucker	Donald Tucker	2	9/30/88	9/30/93	Deep mine opening, acid drainage outlet from the mine. Safety and health hazards, poor visual quality.	Total Cost: \$19,000. Eliminated mine opening and acid drainage. Installed subsurface drainage-300 LF, one sediment basin, woodland planting-2 Ac., wetland habitat development-one acre, critical area planting-2 Ac.

GARRETT COUNTY

RURAL ABANDONED MINE PROGRAM

No.	Common Name	Landowners	Acres	Date Contract Signed	Date Reclamation Completed	Problems	Description of Work Completed
14	Vitez Commissioners	Helen D. Vitez Commissioners J. P. Hoffman Nancy Hoffman	2	9/30/88	9/10/93	Deep mine opening, coal tipple, acid drainage, poor visual quality, safety hazard.	Total Cost: \$16,000. Eliminated mine opening, coal tipple and acid drainage. Installed subsurface drainage-300 LF, critical area planting-2 AC., woodland planting-2 AC.

No.	Common Name	Landowners	Acres	Date Contract Signed	Date Reclamation Completed	Problems	Description of Work Completed
1	Barney Miller Site	William P. Miller	1	8/20/84	4/14/87	Deep mine openings, high walls, surface water, and safety hazard.	Total Cost: \$2,264. Eliminated mine openings and subsidence of refuse area. Abandoned mine reclaimed-1 Ac., pasture management-1 Ac.
2	Spruce Hollow Site	Dr. Jonathan Eckhart and Pat Cosentini	4	9/3/86	9/3/91	Mine openings, trash and wood debris, health and safety hazards.	Total Cost: \$148,300. Eliminated mine openings and debris. Installed lined waterway-1,000 LF, one water outlet structure, critical area planting-4 Ac. and one pond sealing.
3	Huff Site	Howard Huff L. Hunter	24	9/2/84	9/2/89	Old spoil cuts and existing pits, and safety hazard.	Total Cost: \$176,990. Eliminated spoil cuts and pits. Installed subsurface drainage-400 LF, fencing-2,600 LF, one sediment basin, pasture management-24 Ac.
4	Crable Site	Daniel F. Crable	4	8/20/84	8/20/89	Toxic material, mine openings, health hazard	Total Cost: \$16,720. Eliminated toxic material, mine openings and cars. Installed subsurface drainage-600 LF, upland wildlife habitat-2 Ac; critical area planting-2 Ac.
5	Eisel Site	Stanley W. Eisel	3	8/20/84	8/20/89	Mine openings, drainage outlet from the mine. Safety and health hazards, poor visual quality.	Total Cost: \$15,397. Eliminated mine openings and subsidence. Installed diversion-400 LF, subsurface drainage-100 LF, fencing-1,150 ft., critical area planting-3 Ac., pasture management-3 Ac., one sediment basin.
6	Donald Russell Site	Donald Russell	2	9/9/85	9/9/90	Mine openings, safety hazard.	Total Cost: \$8,500. Eliminated mine openings, installed subsurface drainage-400 LF, fencing-600 LF, critical area planting-1 Ac., pasture and hayland improvement-1 Ac.
7	Barton GOB Pile	Joseph Howell	2	9/9/85	9/9/90	High gob piles with steep barren slopes. Safety hazard, poor visual quality.	Total Cost: \$49,640. Eliminated gob piles and steep slopes. Installed lined waterway-240 LF, subsurface drainage-460 LF, critical area planting-one acre.

RURAL ABANDONED MINE PROGRAM

ALLEGANY COUNTY

No.	Common Name	Landowners	Date Contract Signed	Acres	Date Reclamation Completed	Problems	Description of Work Completed
8	Huff Site Phase II	Howard Huff	8/20/86	11	8/20/91	Open pits, large cuts, remnants of old tipple spoil areas. Two water impoundments, health and safety hazards.	Total Cost: \$50,000. Eliminated problem areas. Critical area planting-11 Ac. Pasture management-11 Ac. Diversion removal--2,000 LF.
9	Allegany Coal and Land Co. and Cathy MacFawn	Allegany Coal and Land Co. and Cathy MacFawn	4/17/87	1	4/17/92	Open mine, safety hazard.	Total Cost: \$22,500. Eliminated open mine. Installed waterway-100 LF, critical area Planting-one acre.
10	Mullen	Pond Hall Association Jack Mullen (general partner)	9/30/88	3	9/30/93	Trash and wood debris, old tipple needs to be removed by hauling away or burned. Three mine openings. Safety hazard, poor visual quality.	Total Cost: \$207,000. Eliminated problem areas and situations. Installed subsurface drainage-250 LF, access road-1,400 LF, land clearing-3 Ac., stream bank protection-300 LF critical area planting-3 Ac., one structure for water control.

PART III

RESOURCE CONSERVATION AND DEVELOPMENT PROGRAM

MARYLAND

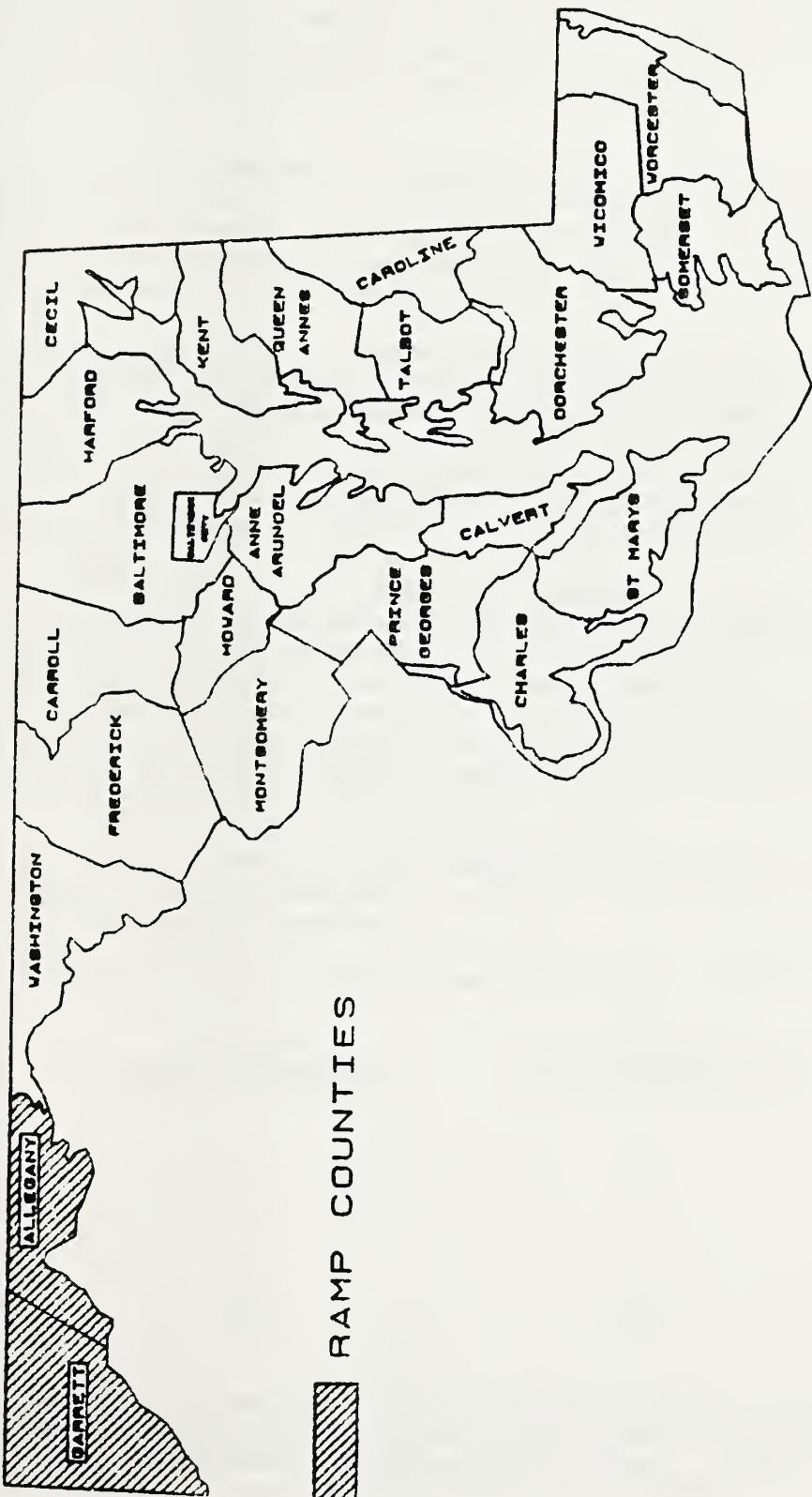


Figure 1
RAMP LOCATION MAP



RESOURCE CONSERVATION AND DEVELOPMENT PROGRAM

The Resource Conservation and Development (RC&D) Program was authorized by the Food and Agriculture Act of 1962 and is administered by the USDA Soil Conservation Service. The RC&D Program expands opportunities for conservation districts, local units of government and individuals to improve their communities in multi-county areas.

In Maryland, two RC&D areas requested assistance under the Program and were authorized by the U.S. Secretary of Agriculture, (See Figure 2). The two RC&D areas, date of authorization and number of counties are: Southern Maryland authorized September, 1991 covering three counties, and Eastern Shore authorized February, 1980 covering nine counties.

There are two types of RC&D measures: Associated measures or those using funds from other sources; and measures eligible for USDA technical and financial assistance. Both types of measures improve the economy and contribute to the quality of the environment and the overall level of living in an area. Sponsors plan and carry out associated measures as primary leaders or supporters with other organizations. SCS involvement with associated measures is generally limited to coordination assistance.

Measures eligible for technical and financial assistance are critical area treatment, land drainage, flood prevention, soil and water management for agriculture with related pollutant control, public water-based fish and wildlife and recreation development, and water quality management. Measures eligible for this type of assistance must be included in a RC&D Measure Plan, sponsored by public bodies or public nonprofit corporations having authority and ability to install, operate, and maintain community-type measures, and the measures must provide community benefits.

Since 1980, RC&D Councils in Maryland have adopted 160 measures. As of December 31, 1988, 107 measures have been completed. Associated measures account for 104 of the adopted measures.

Associated measures accomplishments during the last seven (7) years are as follows:

<u>FY</u>	<u>Adopted Associated Measures</u>	<u>Completed Associated Measures</u>
1982	7	1
1983	6	5
1984	9	3
1985	7	7
1986	40	8
1987	12	11
1988	23	44
Total	104	79

Completed measures including Northside Park Public Water-based Recreation and Cedar Lane Land Drainage as well as other measures have prevented flood damages, reduced erosion, provided recreation opportunities, improved land use, and have contributed to better living, working and enjoyment in Maryland.

AREA - SOUTHERN MARYLAND

COMPLETED RC&D MEASURES
CRITICAL AREA TREATMENT

No.	Measure Name and Number	County	Adopted	Completed	Sponsors	Remarks and Description
1	North Beach CAT MD-6001-009-013	Calvert	9/83	4/86	Town Council State Highway Calvert SCD	1,000 LF stone revetment.
2	Piccowaxen Middle School CAT MD-6001-017-026	Charles	5/82	10/84	County Board of Education Charles SCD	Pond installed to provide stormwater management and act as sediment basin and drop structure .18-LF Diversion, 90 LF rock lined waterway installed.
3	Leonardtown CAT MD-6001-037-021	St. Marys	6/84	12/85	St. Marys County Government and St. Marys SCD	Installed storm drain, 800 LF rocklined channel with outlet.

AREA - EASTERN SHORE

COMPLETED RC&D MEASURES
CRITICAL AREA TREATMENT

No.	Measure Name and Number	County	Adopted	Completed	Sponsors	Remarks and Description
1	Nonstructural Shore CAT MD-6002-002-007	Multi County	4/88	12/88	DNR, Tidewater Administration, Queen Anne's and Worcester, SCD	2,205 LF shoreline protection, 1.2 AC. wetland, 53,750 marsh plants planted.
2	County Roads Crossings CAT MD-6002-011-005	Caroline	6/83	8/88	Caroline SCD, County Commissioners	5 stilling basins, 18 new pipes, 21 pipe extensions, 3 AC. revegetation, gabion baskets and riprap.
3	Ridgley Stream-bank CAT MD-6002-011-010	Caroline	4/85	8/88	Caroline County Soil Conservation District	Gabion-400 feet, one rock stilling basin.
4	Elkton Water Plant CAT MD-6002-015-001	Cecil	9/80	6/82	Town of Elkton, Cecil Soil Conservation District	Gabion-380 feet.
5	Chesapeake Isle Crossings CAT MD-6002-015-004	Cecil	4/82	12/84	Cecil Soil Conservation District, County Commissioners, Chesapeake Isle Civic Association	1530 LF rock revetment shoreline erosion protection, diversion-800 feet, revegetation-2 AC.
6	Meadow Park CAT MD-6002-015-007	Cecil	9/80	10/82	Town of Elkton, Cecil SCD	Gabion-280 feet.
7	Hoopersville Road CAT MD-6002-019-002	Dorchester	9/80	8/82	Dorchester County Commissioners Dorchester SCD	300 LF rock revetment shoreline erosion protection, revegetation-.14 AC.
8	Horn Pt. Veg Shoreline CAT MD-6002-019-008	Dorchester	4/85	9/85	Dorchester SCD, DNR	340 LF vegetative shoreline erosion protection.
9	Chesapeake Landing CAT MD-6002-029-002	Kent	9/80	6/87	Kent SCD, County Commissioners, Chesapeake Landing Community Association	Revegetation-15 AC.
10	Beechwood Glen CAT MD-6002-029-004	Kent	6/83	6/88	Kent SCD, Beechwood Glen Civic Association, Inc.	Rocked waterway-1,700 feet, two stilling basins, pipe drop structures, revegetation-2 AC.
11	Romance Park CAT MD-6002-035-005	Queen Anne's	11/82	5/84	Queen Anne's SCD County Commissioners	115 LF rock revetment shoreline erosion protection, revegetation-.5 AC.
12	Wye Island Veg Shoreline Two CAT MD-6002-035-006	Queen Anne's	11/84	7/86	Queen Anne's SCD, DNR	3,100 LF non-structural shoreline erosion protection. Rock outlet, rock channel, and diversions installed.

AREA - EASTERN SHORECOMPLETED R&D MEASURES
CRITICAL AREA TREATMENT

No.	Measure Name and Number	County	Adopted	Completed	Sponsors	Remarks and Description
13	Wye Island Veg shoreline CAT MD-6002-035-006	Queen Anne's	11/84	12/85	Queen Anne's SCD, DNR	510 LF non-structural shoreline erosion protection, upland vegetation-2 AC.
14	Terrapin Beach CAT MD-6002-035-007	Queen Anne's	4/85	11/88	Corps of Engineers, Park and Recreation, Tidewater Administration EPA	600 LF non-structural shoreline erosion protection, revegetation-2 AC.
15	Haines Point Crossings CAT MD-6002-039-008	Somerset	6/83	12/85	Somerset SCD, County Commissioners	Wooden bulkhead-350 feet, aluminum bulkhead-200 feet, one culvert pipe, revegetation-.5 AC.
16	James Island SHVEG DEMO CAT MD-6002-039-011	Somerset	4/85	7/86	Somerset SCD	2,650 LF non-structural shoreline erosion protection, vegetative buffer strip, revegetation-1 AC.
17	MD NESSEC Program CAT MD-6002-999-001	Multi County	11/84	9/85	Multi County SCD, DNR	Rocked stone containment structures, revegetation-3 AC.
18	Chester Miles Wye NESSEC CAT MD-6002-002-001	Multi County	10/86	10/88	EPA, DNR, Tide Water Administration	24 Non-structural shoreline projects completed 3.5 miles of shoreline. 8.4 ac. wetland, and 133,000 marsh plants planted.

AREA - EASTERN SHORECOMPLETED RC&D PROJECT MEASURESLAND DRAINAGE

No.	Measure Name and Number	County	Adopted	Completed	Sponsors	Remarks and Description
1	Cedar Lane PDA LD MD-6002-011-002	Caroline	9/80	5/83	Caroline SCD County Commissioners Public Drainage Association	1.6 miles of outlet drainage (drainage area- 135 Ac.), revegetation-5.6 Ac.
2	Hill Road PDA LD MD-6002-011-001	Caroline	8/80	12/81	Caroline SCD County Commissioners, Public Drainage Association	1.7 Miles-channel (Drainage Area-73 Ac), revegetation-6.2 Ac.

AREA - EASTERN SHORE

COMPLETED RC&D PROJECT MEASURES
PUBLIC WATER BASED RECREATION

No.	Measure Name and Number	County	Adopted	Completed	Sponsors	Remarks and Description
1	Betterton Beach MD-6002-029-001	Kent	8/80	10/86	Kent SCD, County Commissioners	Picnic pavillion, bath house, groin, boardwalk- 400 feet, culvert pipe-200 feet, improved drainage.
2	Tilghman Park MD-6002-041-001	Talbot	8/80	10/83	Talbot SCD, County Commissioners	Tot lot, parking lot, 2,750 feet split rail fence, 320 feet walkway, observation deck, 720 trees and shrubs, picnic tables, revegetation-6 Ac.
3	Fruitland Park MD-6002-045-001	Wicomico	8/80	4/81	Wicomico SCD, City of Fruitland	4,800 feet grassed waterway, 13 Ac. Revegetation 3 debris basins, 3 structures for water control, 3 Ac. land smoothing, 5,800 feet windbreak.
4	Pemberton Park MD-6002-045-007	Wicomico	12/81	9/84	Wicomico SCD, County Council	Wood frames storage facility, 1,660 feet nature trail, pond, 3,050 feet road with double gate, parking lot, 1,000 foot windbreak, revegetation-6 A
5	Northside Park MD-6002-047-003	Worcester	9/80	8/82	Worcester SCD, Town of Ocean City	8.6 Ac. revegetation with marsh plants, upland marsh herb, marsh restoration.

SCD - Soil Conservation District

DNR - Department of Natural Resources

EPA - Environmental Protection Agency

MARYLAND

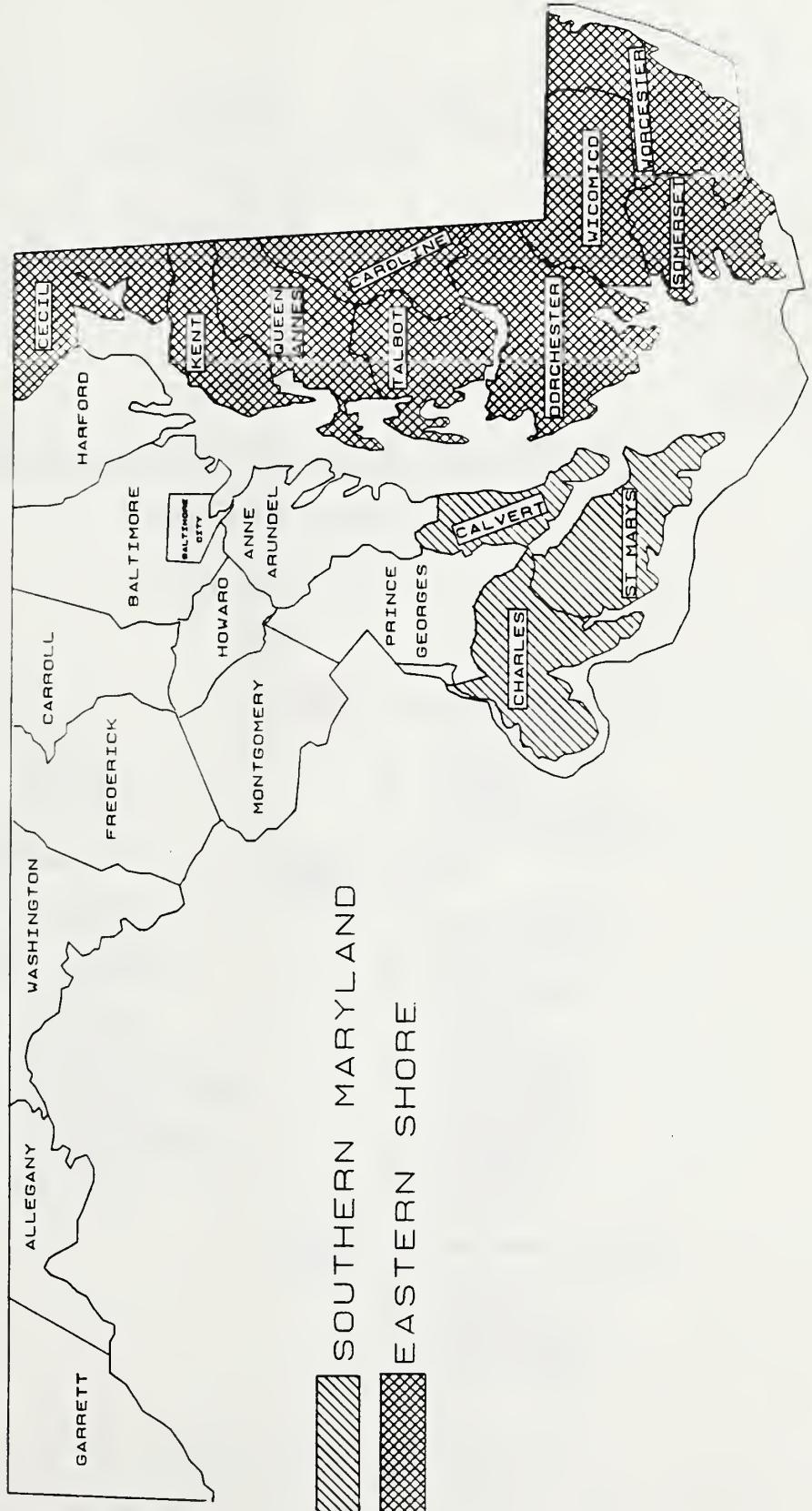


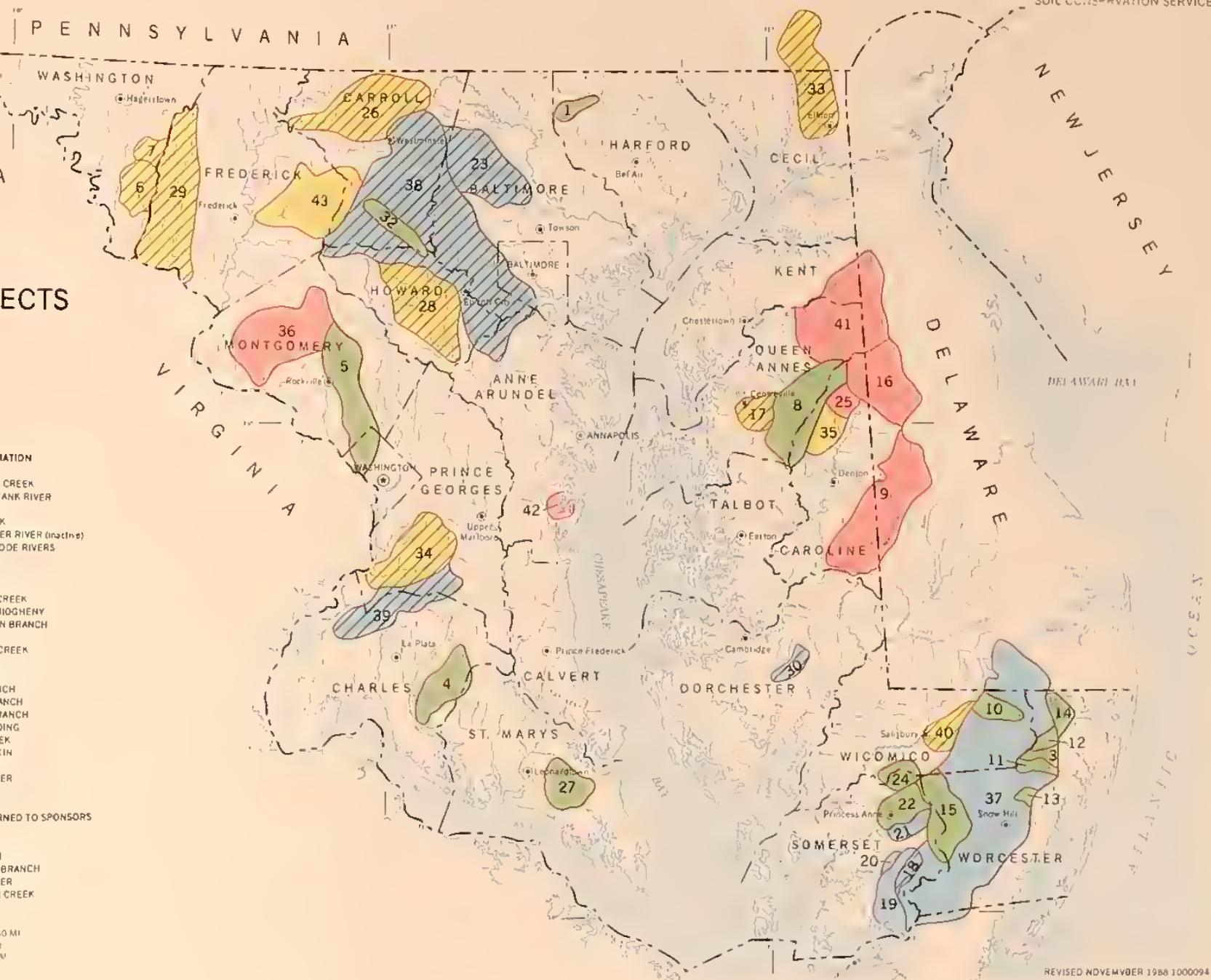
Figure 2
RC&D AREA LOCATION
MAP

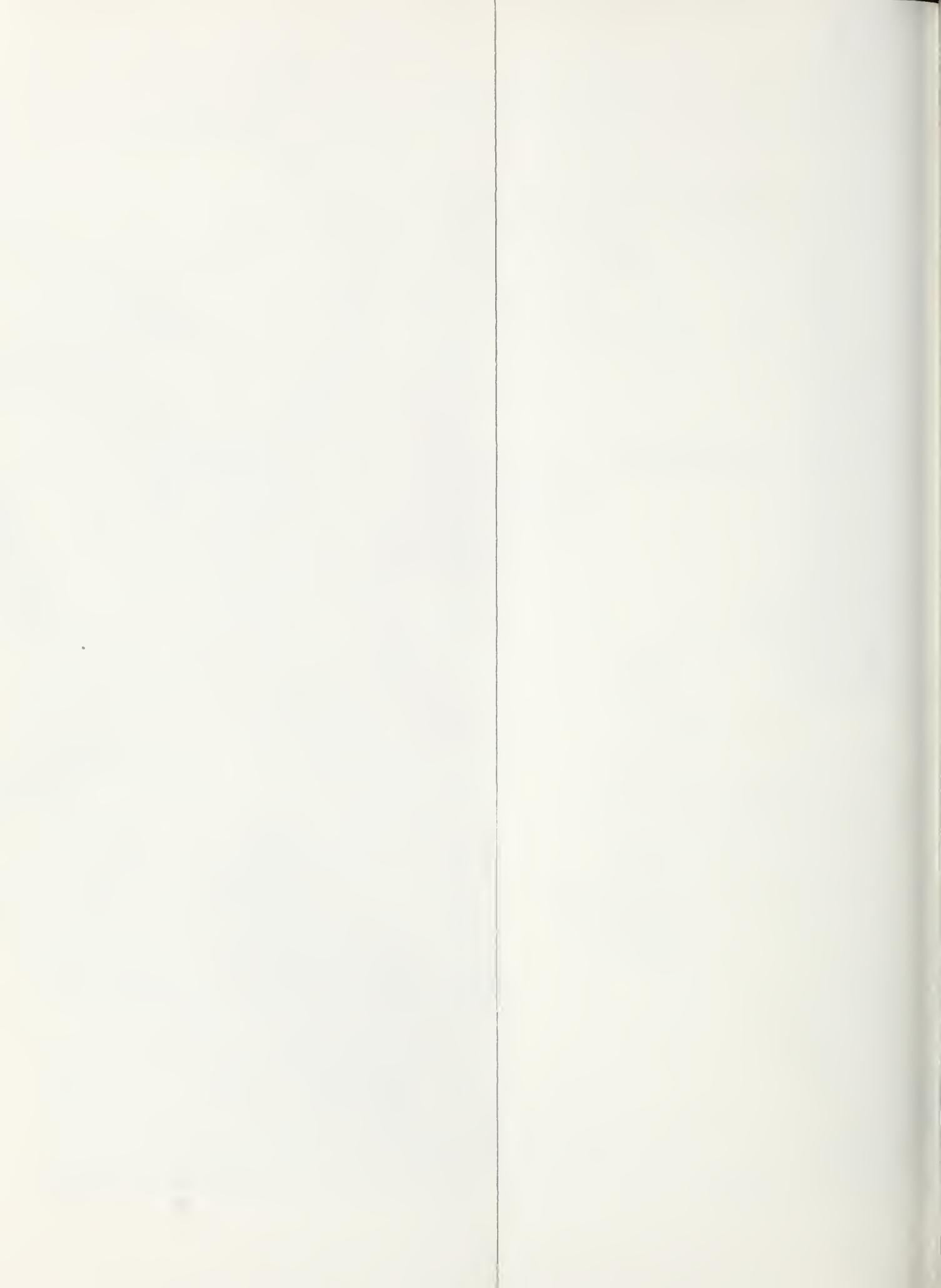
STATUS OF WATERSHED PROJECTS MARYLAND

JANUARY 1989

LEGEND

APPLICATION	APPROVED FOR OPERATION
19 MARUMSCOD	09 MARSHYHDPE CREEK
20 TURKEY CREEK	16 UPPER CHOPTANK RIVER
21 KINGS CREEK	25 GOLDSBRO
37 POCOMOKE RIVER	36 SENECA CREEK
	41 UPPER CHESTER RIVER (inactive)
	42 WEST AND RHODE RIVERS
PLANNING AUTHORIZED (IN PROGRESS)	COMPLETED
35 GEORGE BRANCH	01 LITTLE DEER CREEK
43 LINGANDRE CREEK	02 LITTLE YOUGHIOGHENY
PLANNING AUTHORIZED (TERMINATED OR SUSPENDED)	03 TIMMONSDOWN BRANCH
06 LITTLE ANTIETAM	04 GILBERT RUN
07 LITTLE BEAVER	05 UPPER ROCK CREEK
17 CORSICA RIVER	08 LONG MARSH
26 BIG AND LITTLE PIPE CREEKS	10 AYDELLOTTE
28 LITTLE AND MIDDLE PATUXENT	11 NINEPIN BRANCH
29 CATOCTIN CREEK	12 FRANKLIN BRANCH
31 UPPER CASSELMAN RIVER	13 COONFOOT BRANCH
33 BIG AND LITTLE ELK CREEK	14 SHINGE LANDING
34 PISCATAWAY	15 DIVIDING CREEK
40 BEAVERDALE CREEK	22 UPPER MANOKIN
	24 PASSERDYKE
	27 ST. MARYS RIVER
	32 PINEY RUN
APPLICATIONS RETURNED TO SPONSORS	
	18 REHOBETH
	23 WESTERN RUN
	30 MIDDLETOWN BRANCH
	38 PATAPSCO RIVER
	39 MATTAWMDAN CREEK







PENNSYLVANIA

STATUS OF RIVER BASIN STUDIES MARYLAND

JANUARY 1989

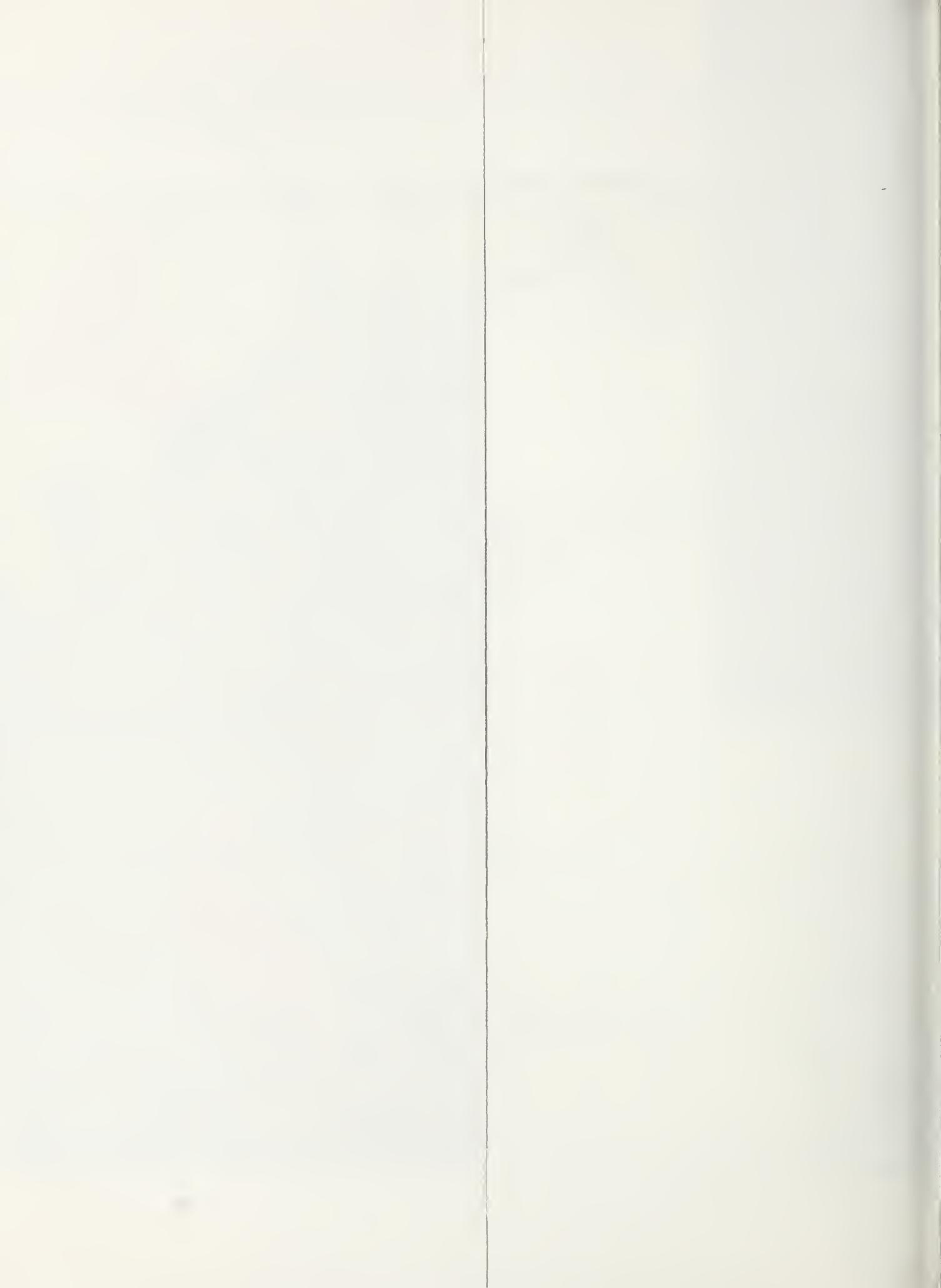
RIVER BASINS

- Patapsco (complete)
- DelMarVa (complete)
- Pocomoke (complete)
- West Chesapeake (complete)
- River Basin Boundary
- Chesapeake Cooperative River Basin Study (active)

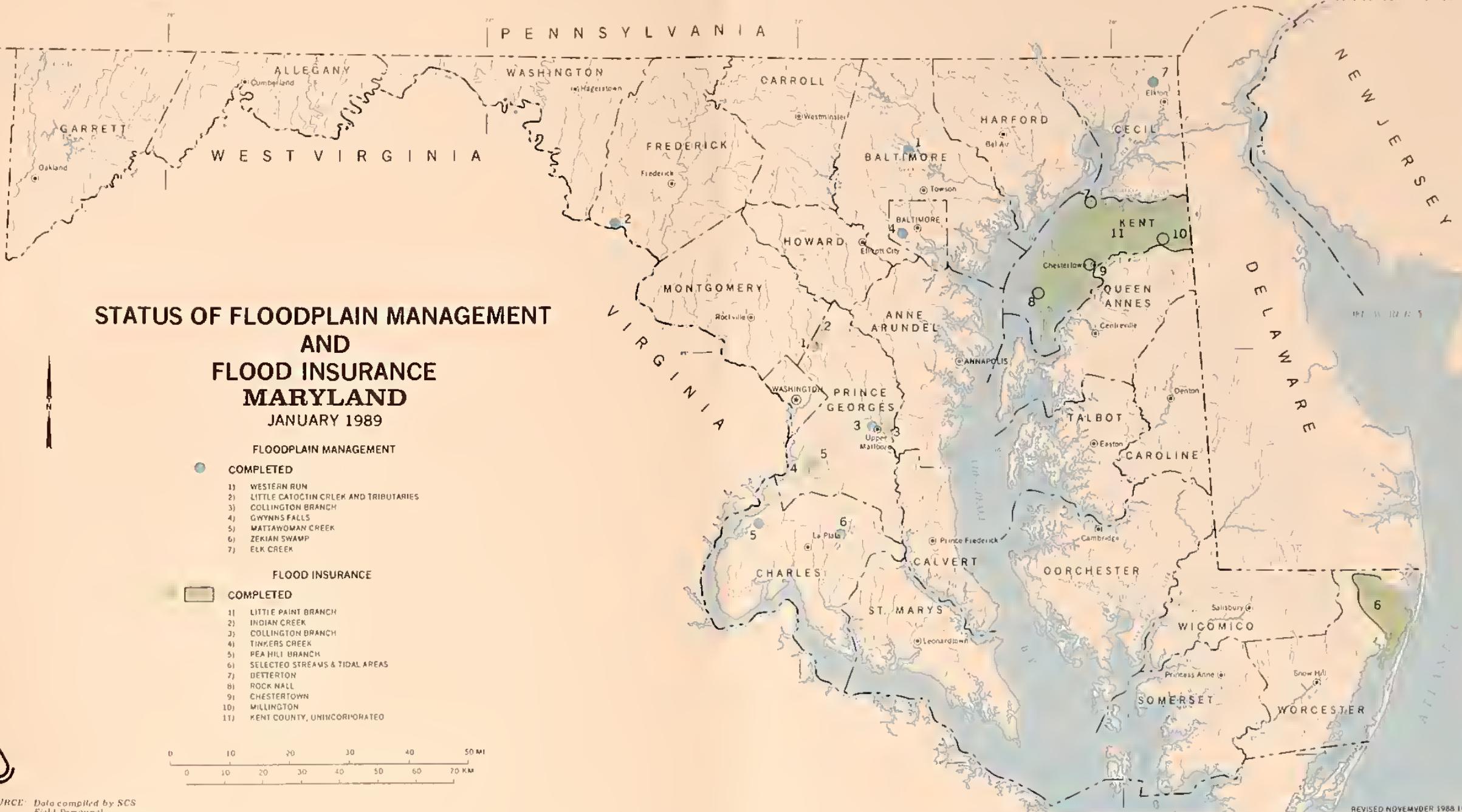
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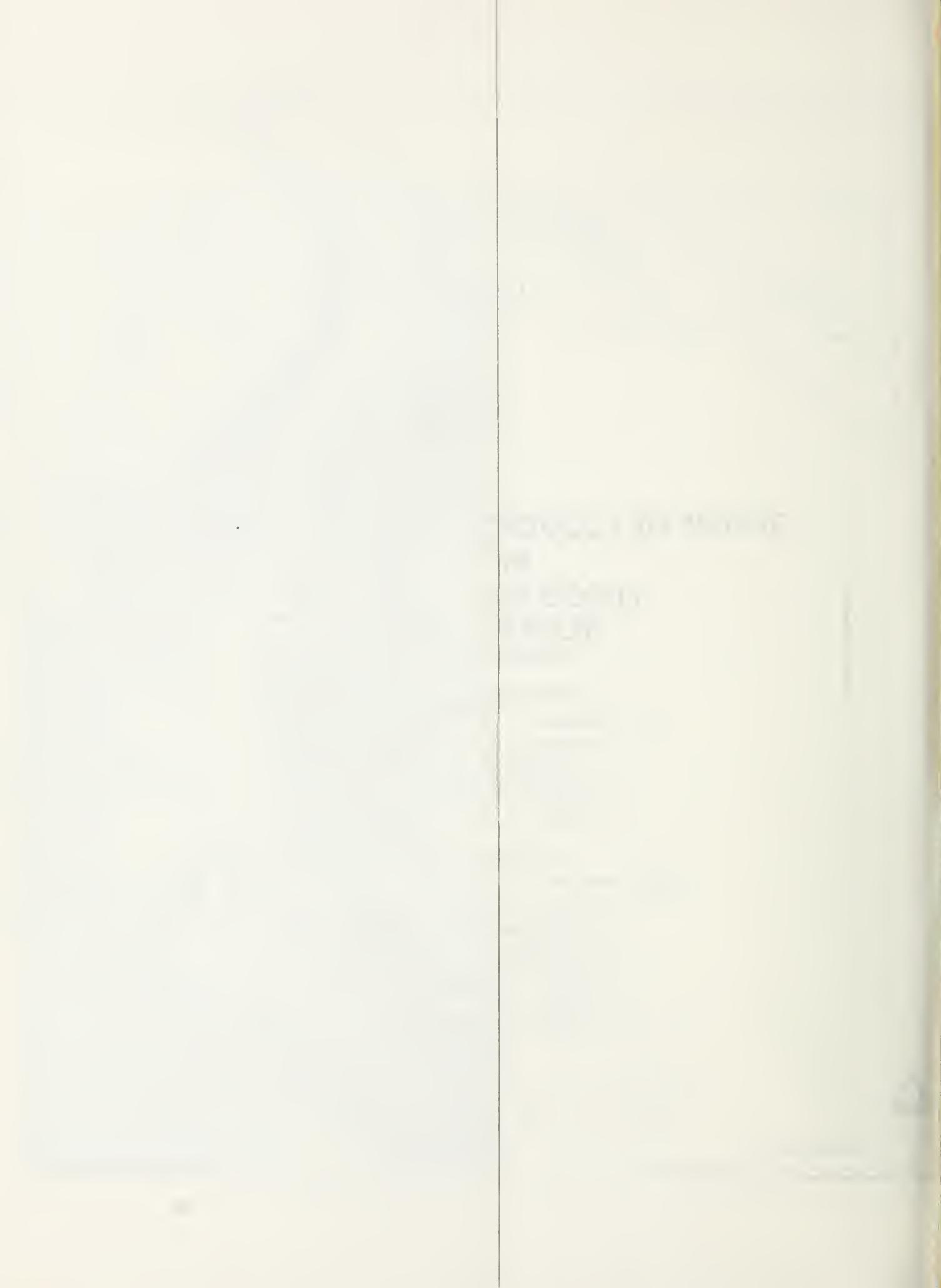
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Field Personnel

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